User Manual for Scribe 2.3

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http://brainmap.org

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Introduction

BrainMap has been in step-wise development since 1988 and actively in use since 1992. Its purpose is to facilitate the retrieval and understanding of the literature on functional mapping of the human brain, and to enable meta-analysis of this literature. The structure of BrainMap data entry involves three levels of information: paper, experiment, and locations (coordinates). Paper-level information contains fields such as authors, year of publication, and subject demographics. In the BrainMap database, experiments are defined as the comparison of two (or more) imaged conditions that result in a statistical parametric image (SPI). Papers containing multiple experiments require information for each experiment to be entered separately; this includes fields such as the paradigm class and behavioral domain. At the location level, Talairach or MNI (x,y,z) coordinates (i.e., centers-of-mass of sites of activation) are extracted from the SPIs and are entered into the database.

Initially, the BrainMap database archived only functional neuroimaging experiments. In 2007, the BrainMap team initiated efforts to expand into archiving *structural* neuroimaging data. Specifically, voxel-based morphometry (VBM), which is a statistical analysis for investigating structural differences between two groups of subjects (e.g., areas of increased gray matter density for patients vs. healthy controls), had also achieved community standardization such that results reported in the form of stereotactic coordinates in the same form as for functional neuroimaging data had become the norm. Formal integration by meta-analyses on structural neuroimaging findings thus become possible. Following multiple years of data entry, as well as database, servlet, and software programming and development, the BrainMap VBM database was released to the public in June 2011.

The Scribe software application is used to code data and meta-data from a functional or voxel-based neuroimaging paper so that this information can be submitted and inserted into the BrainMap database. When Scribe is launched, a dialog window asks users to select which type of paper they wish to code, functional or VBM. Following this, the main application window is configured to match the user's selection. Functional submissions are created as .ent files while the VBM database archives .vbm files, which allows each type of submission to be easily identified.

Regardless of the type of submission, the first panel of the BrainMap Scribe interface is entitled 'Citation,' and the last is entitled 'Feedback.' The interface is designed to enter data from the left to right. Some entry panels will not accept information until previous panels have been completed. Furthermore, all panels except 'Experiment' require paper-level information. Some fields provide drop-down menus and some provide windows for free-form entry. The words from the drop-down menus are all keywords that users may use to conduct searches using BrainMap Sleuth (www.brainmap.org/sleuth).

According to BrainMap's system of describing a paper, studies are broken down into **Conditions** and **Experiments**.

Conditions:
Subjects perform tasks under certain conditions and these conditions are contrasted in an experiment. Each condition used in a BrainMap-defined experiment should be briefly described and named by simple terms such as "Read", "Finger Tapping", "Rest", or "Word Generation".

Experiments:
An experiment is the result of comparing two or more conditions. Each experiment name should indicate which conditions were contrasted. In the preceding example, the experiment would be named: "Finger Tapping –

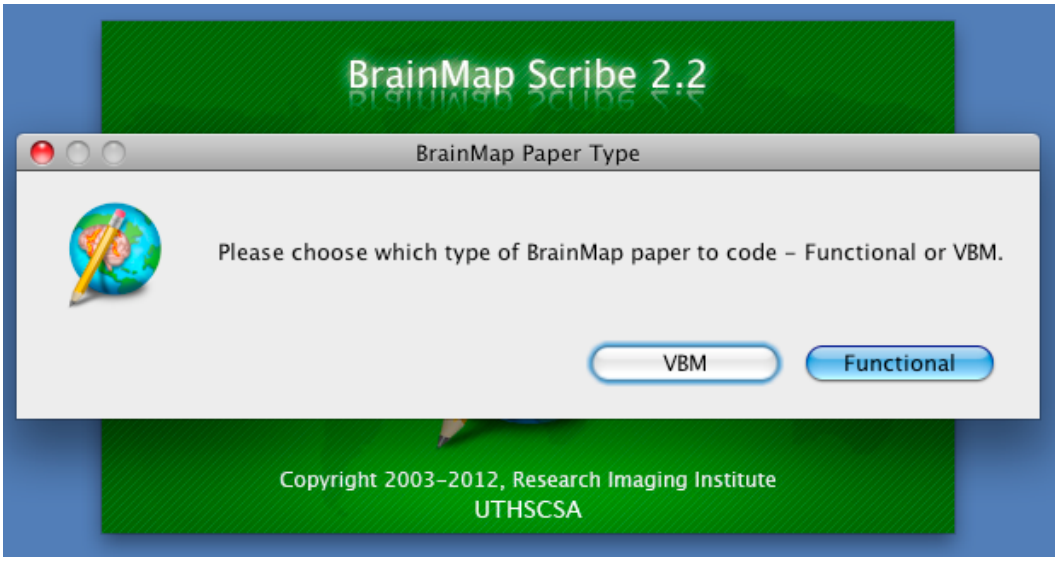
Rest". The names used here should be entered on the Experiments panel. Experiments should be listed here and in the order in which they were published.

Do not enter conditions that do not result in activations or were not used in experiments. But please document in the 'Feedback' panel that there were in fact conditions or experiments that did not fit the BrainMap coding criteria and why (i.e., no reported coordinates; experiments were ROI seeded).

Save BrainMap Database Submission:
It is a good idea to save your changes to file after completing each major panel. To do so, click on the top left program menu: 'File' → 'Save As'. This saves the information in an *.ent file (or a *.vbm file, depending on your choice). Enter the file name in the following format: "Author_Journal_Year.ent". If you are on a PC, be sure and type in file extension. Journal names should be abbreviated and years listed as the last two digits of the published year, for example, "Lee_HBM_02.ent".

Functional or VBM Database Submissions

When Scribe is launched, you will see the following dialog window:

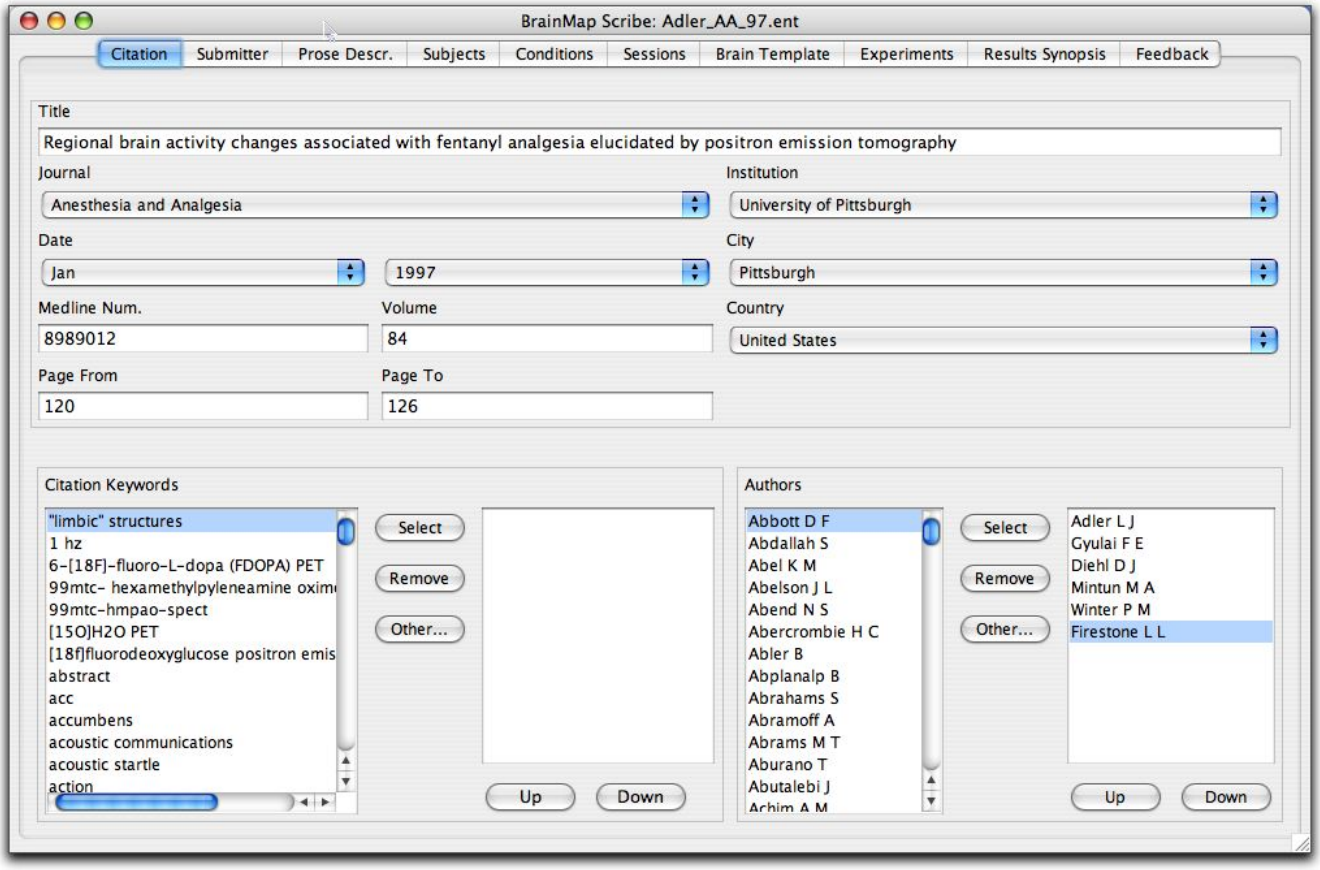


Selecting "VBM" takes you to the interface for a VBM submission, while selecting "Functional" will take you to the interface for a functional submission.

In this manual, we will first describe how to generate a submission for the BrainMap functional neuroimaging database. On page 37, we address the modifications necessary to generate a BrainMap voxel-based morphometry submission.

Functional Neuroimaging Submissions

Citation



Title

Capitalize the initial word and those used to capitalize proper names; use lowercase for all other words. Also, capitalize the first letter after a colon. **Do not leave a period at the end of the title**.

Journal

Select the journal name from the pull-down menu provided. If the journal name does not appear, choose 'Other' and enter the journal name **without** abbreviations. Do not list sections.

Institution

List the name of the institution where the data was acquired. Enter the university name, not the department.

- Enter Institute of Psychiatry, King's College of London as: University of London.
- Enter Wellcome Department of Cognitive Neurology as: University College London.

Medline Num.

The Medline Number can be located at the PubMed or Medline website. If a paper is not archived in PubMed, leave this field blank.

Citation Keywords

Click on the desired keywords (from the list published with the paper), and then click the 'Select' button. The chosen keyword will appear in the box to the right. Use the 'Up/Down' buttons to reorganize the keywords as needed.

If the appropriate keywords used in your paper are not included in the list provided, click the 'Other' button and type in the keyword in the window provided.

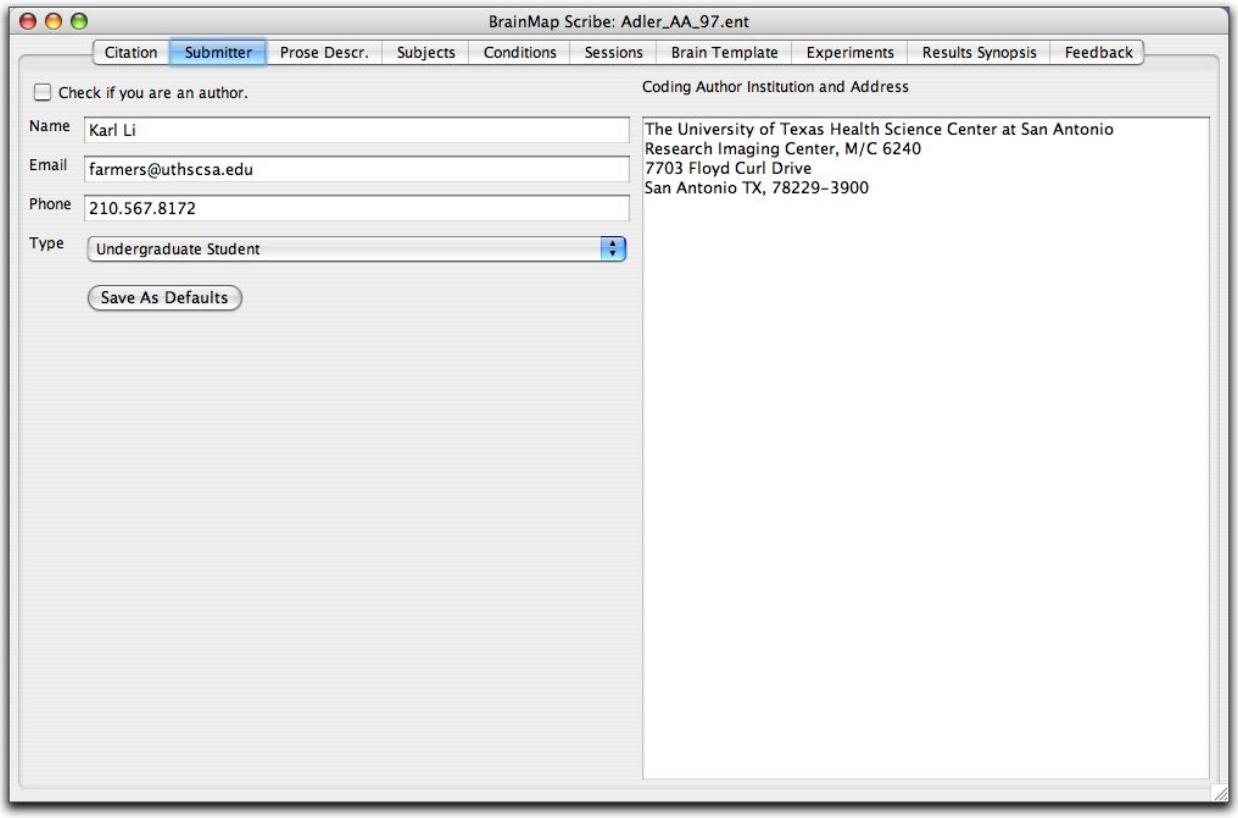
- Enter the exact keyword listed, for example, fMRI and functional MRI are two different keywords.
- Do not use capital letters except for proper names/nouns.
- **Enter only the keywords published with the paper.** If there are no keywords listed, leave this field blank.

Authors

Enter all authors listed on the paper.

- Format should be last name followed by first name initials with no punctuation included.
- Do not add another version of an author's name that already appears in the database, e.g., Friston K and Friston K J.
- List authors in the order of appearance on the paper.
- Do not hyphenate first names of authors. Example: Marie-Claude Antoinette should be entered as "Antoinette M C", not as "Antoinette M-C".

Submitter



Enter the requested information about the submitter (you). Check the appropriate box if you are an author on the paper. By clicking the “Save as Defaults” button you can save your submitter information so that you will not have to re-type it on subsequent submissions.

Prose Description

When entering a paper into BrainMap, special care should be taken when writing the Prose Description. **The new format for prose entry differs from what was previously documented in past versions of Scribe.**

The prose description should:

- Describe only the purpose of the study as well as the experimental design (no background, results or discussion should be included)
- Be illustrative, but as succinct as possible
- Be written in **third person, past tense** format
- Include sufficient, specific information for each condition and experiment so that a reader will fully understand the experimental design of the study

The prose section should be broken down into the following sections:

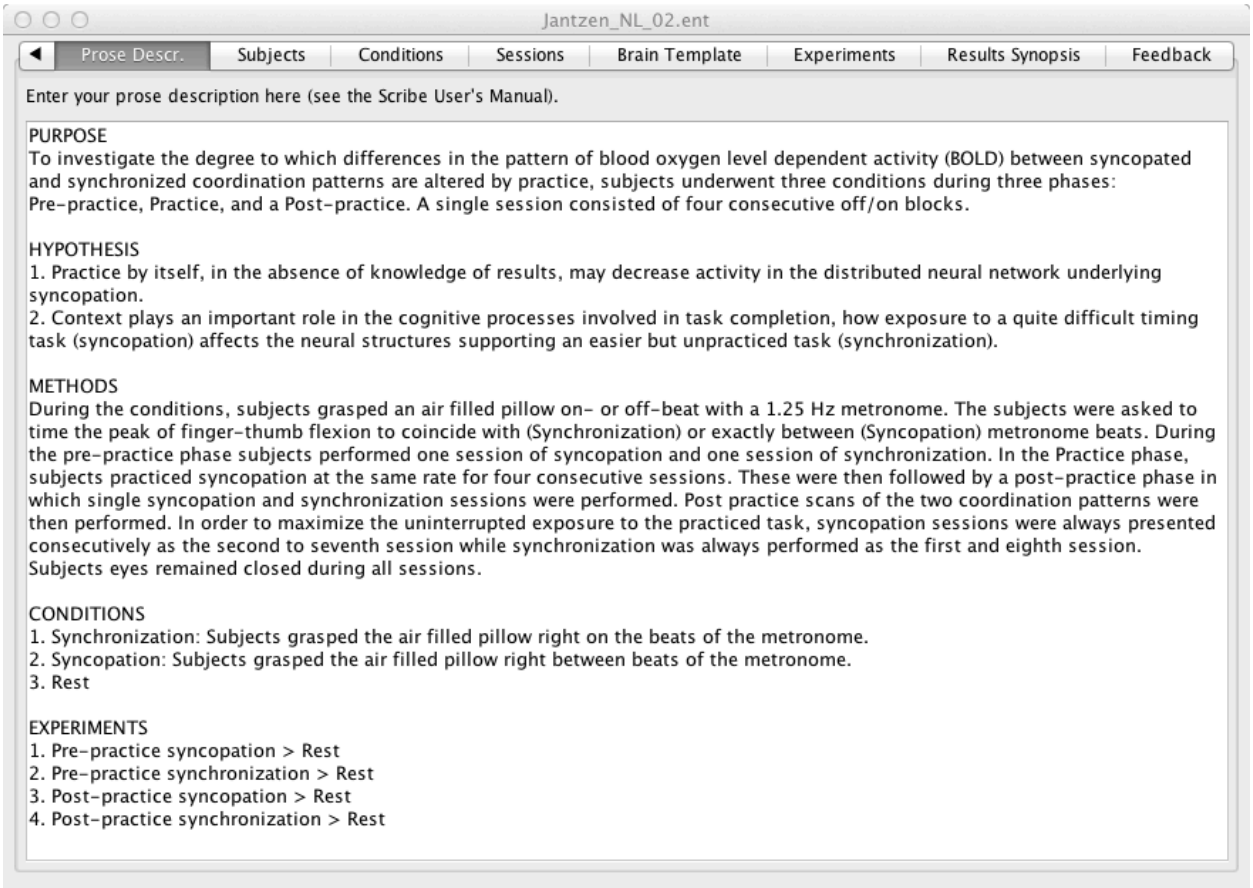
PURPOSE
HYPOTHESIS
SESSIONS
METHODS
CONDITIONS
EXPERIMENTS

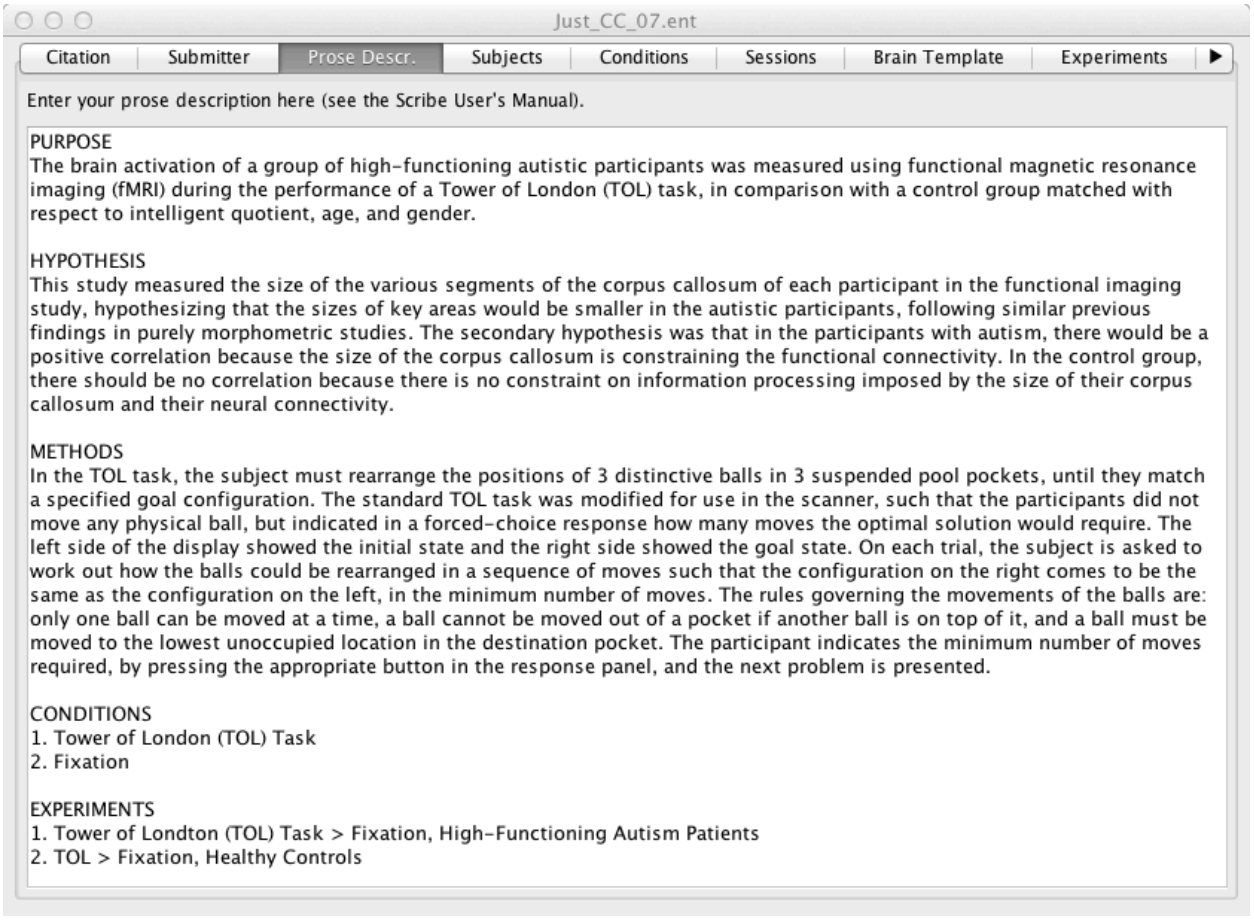
Most information needed for the sections can be found directly from the original article. Do not include any bias or personal input if information is not found in the text. Findings should strictly reflect the author's work/opinions. Because the hypothesis is not always clearly stated in an article, this header can be omitted if the author does not explicitly state the expectations. The sessions header should only be included if multiple scanning sessions were done, otherwise it can be omitted as well.

- The PURPOSE section is usually taken directly from the Introduction, and the majority of the time you can find it in the last paragraph
- Define any abbreviations used
- The main points we want to capture in the METHODS section is the experimental design being used, the response being observed (if any), and the instructions given to the subjects. Any relevant or important details such as training or follow-up information can also be included. Details will vary per submission.
- To keep the prose description as concise as possible, do not repeat information in both the METHODS and CONDITIONS sections. This can be done in one of two ways: The CONDTIONS can be defined in the METHODS section then only listed under the CONDITIONS header, or they can be stated in the METHODS, then defined in more detail under the CONDITIONS header.
- Describe the conditions in a chronological sense. For example, "subjects viewed a series of letters; after a delay, subjects viewed a probe letter and recalled if the probe letter had been one of the encoded letters".
- Capitalize the first letter in all words in the names of conditions and the names of experiments.
- The names of experiments should be taken directly from the coordinate tables or figures in the papers. Some experiment names explicitly state the conditions in them: "Finger Tapping – Rest" or "Finger Tapping vs. Rest" or "Finger Tapping > Rest", and some do not: "Motor Directed Attention"

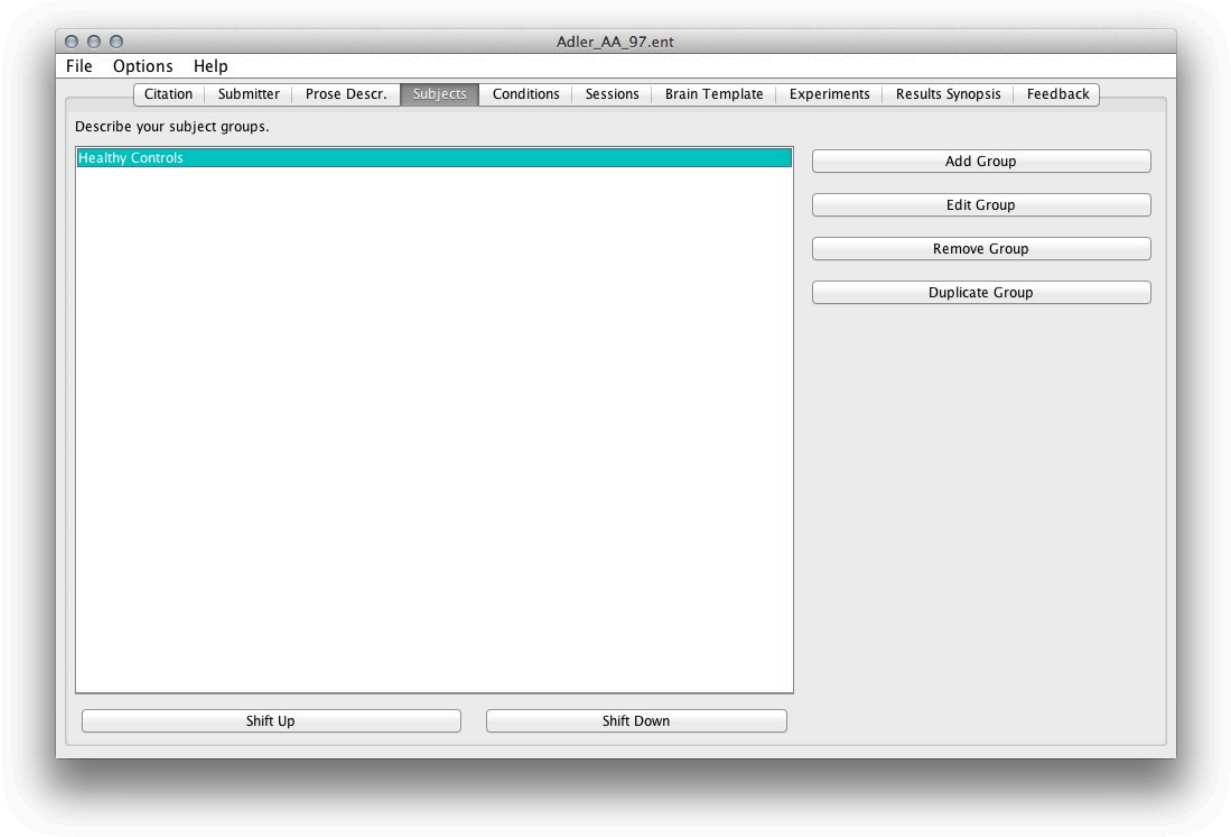
or “Conjunction Analysis”. Use the convention of naming adopted in the paper. For conjunction and disjunction analyses, normally all conditions are used in all experiments unless the experiment indicates which conditions were used in each experiment. (See Thierry_HBM_03.ent for an example.)

- Abbreviations are acceptable but the first use must be defined then the subsequent references can just be entered in the abbreviated form.
- Do **not** include region-of-interest (ROI) experiments, but document this in the feedback panel.
- Avoid use of the word “task” in the condition (and experiment) name. For example, “Finger Tapping Task” should be named “Finger Tapping”.
- If “Rest” is used as a control condition, list it last. The conditions “Rest” and “Fixation” do not require a description.
- Some papers report increases and decreases in activation. Be sure to inspect the coordinate tables carefully, as authors frequently present each in the same table. Increases and decreases should be coded and named as separate experiments. For example, a study may investigate motor function and acquire data on two conditions, Finger Tapping and Rest. The coordinate table may be titled “Increases” and “Decreases” and the paper should be coded with two experiments, not one.


Jantzen_NL_02.ent
Prose Descr.
Subjects
Conditions
Sessions
Brain Template
Experiments
Results Synopsis
Feedback
Enter your prose description here (see the Scribe User's Manual).
PURPOSE
To investigate the degree to which differences in the pattern of blood oxygen level dependent activity (BOLD) between syncopated and synchronized coordination patterns are altered by practice, subjects underwent three conditions during three phases: Pre-practice, Practice, and a Post-practice. A single session consisted of four consecutive off/on blocks.
HYPOTHESIS
1. Practice by itself, in the absence of knowledge of results, may decrease activity in the distributed neural network underlying syncopation.
2. Context plays an important role in the cognitive processes involved in task completion, how exposure to a quite difficult timing task (syncopation) affects the neural structures supporting an easier but unpracticed task (synchronization).
METHODS
During the conditions, subjects grasped an air filled pillow on- or off-beat with a 1.25 Hz metronome. The subjects were asked to time the peak of finger-thumb flexion to coincide with (Synchronization) or exactly between (Syncopation) metronome beats. During the pre-practice phase subjects performed one session of syncopation and one session of synchronization. In the Practice phase, subjects practiced syncopation at the same rate for four consecutive sessions. These were then followed by a post-practice phase in which single syncopation and synchronization sessions were performed. Post practice scans of the two coordination patterns were then performed. In order to maximize the uninterrupted exposure to the practiced task, syncopation sessions were always presented consecutively as the second to seventh session while synchronization was always performed as the first and eighth session. Subjects eyes remained closed during all sessions.
CONDITIONS
1. Synchronization: Subjects grasped the air filled pillow right on the beats of the metronome.
2. Syncopation: Subjects grasped the air filled pillow right between beats of the metronome.
3. Rest
EXPERIMENTS
1. Pre-practice syncopation > Rest
2. Pre-practice synchronization > Rest
3. Post-practice syncopation > Rest
4. Post-practice synchronization > Rest


Just_CC_07.ent
Citation
Submitter
Prose Descr.
Subjects
Conditions
Sessions
Brain Template
Experiments
Enter your prose description here (see the Scribe User's Manual).
PURPOSE
The brain activation of a group of high-functioning autistic participants was measured using functional magnetic resonance imaging (fMRI) during the performance of a Tower of London (TOL) task, in comparison with a control group matched with respect to intelligent quotient, age, and gender.
HYPOTHESIS
This study measured the size of the various segments of the corpus callosum of each participant in the functional imaging study, hypothesizing that the sizes of key areas would be smaller in the autistic participants, following similar previous findings in purely morphometric studies. The secondary hypothesis was that in the participants with autism, there would be a positive correlation because the size of the corpus callosum is constraining the functional connectivity. In the control group, there should be no correlation because there is no constraint on information processing imposed by the size of their corpus callosum and their neural connectivity.
METHODS
In the TOL task, the subject must rearrange the positions of 3 distinctive balls in 3 suspended pool pockets, until they match a specified goal configuration. The standard TOL task was modified for use in the scanner, such that the participants did not move any physical ball, but indicated in a forced-choice response how many moves the optimal solution would require. The left side of the display showed the initial state and the right side showed the goal state. On each trial, the subject is asked to work out how the balls could be rearranged in a sequence of moves such that the configuration on the right comes to be the same as the configuration on the left, in the minimum number of moves. The rules governing the movements of the balls are: only one ball can be moved at a time, a ball cannot be moved out of a pocket if another ball is on top of it, and a ball must be moved to the lowest unoccupied location in the destination pocket. The participant indicates the minimum number of moves required, by pressing the appropriate button in the response panel, and the next problem is presented.
CONDITIONS
1. Tower of London (TOL) Task
2. Fixation
EXPERIMENTS
1. Tower of Londton (TOL) Task > Fixation, High-Functioning Autism Patients
2. TOL > Fixation, Healthy Controls

Subjects

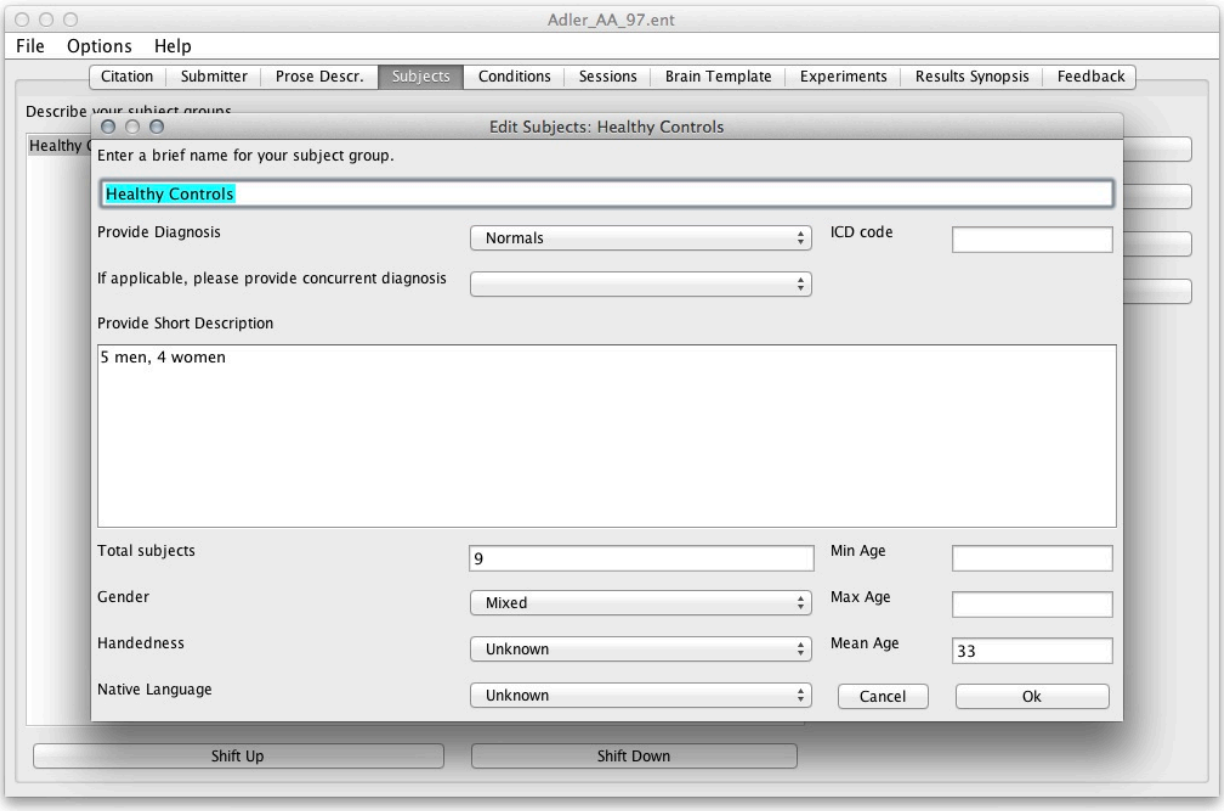


Click the ‘Add Group’ button to enter subject information in the ‘Subjects’ panel that appears as a blank window.

To enter several similar subject groups, enter the first set of data, and then click on the group name. Next, click the 'Duplicate Group' button. Data entered for the first group will be copied into a new subject group window. Rename the duplicate subject group and change the data as appropriate.

If coordinates reported are for individual subjects, as opposed to group mean data, enter each subject’s information as an individual group.

Subjects: Subject Group



Name of Subject Group

Provide a brief name for the subject group. Normal subjects groups should be referred to as "Healthy Controls".

In the case of subgroups used from a larger group population, please enter the subgroup in the following matter: "Subgroup of [Main Group], unique feature of the subgroup", (e.g., Subgroup of Healthy Controls, Males Only).

Provide Diagnosis

Select from the list any medical or psychological conditions.

ICD Code

Most diseases are listed in the International Classification of Diseases (ICD). If the ICD number is not known (usually the case), then leave this blank.

Provide Short Description

Enter the ratio of male to female subjects (e.g. 4 women, 5 men). Also, enter the ratio of right-handed and left-handed subjects (e.g., 6 right-handed, 4 left-handed). Include inclusion or exclusion criteria, as well as any relevant subject-group specific information.

Total Subjects

Enter a number into the space provided. Only integers are allowed.

Gender

Select the gender from the pull-down menu. If “Mixed” gender is selected, indicate the number of male and female subjects in the short description.

Handedness

Choose one option from the menu to describe the handedness of the subject group. Use the ‘Mixed’ option if the subjects had different handedness.

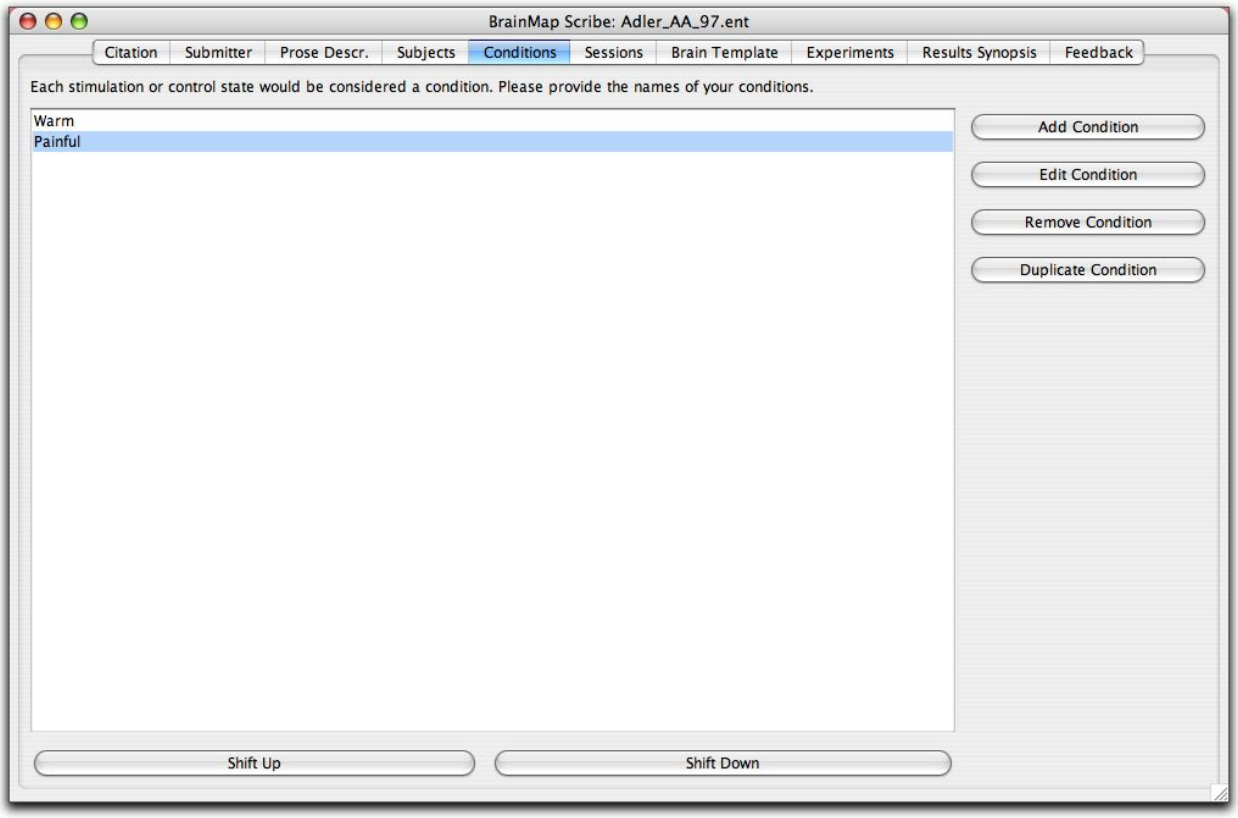
Native Language

Choose the native language or languages of the subjects, or add a new language to the list by choosing ‘Other’ and typing into the window that appears.

Ages of Subjects

Fill in ‘Min Age,’ ‘Max Age,’ and ‘Mean Age’, if reported. Only integers are allowed.

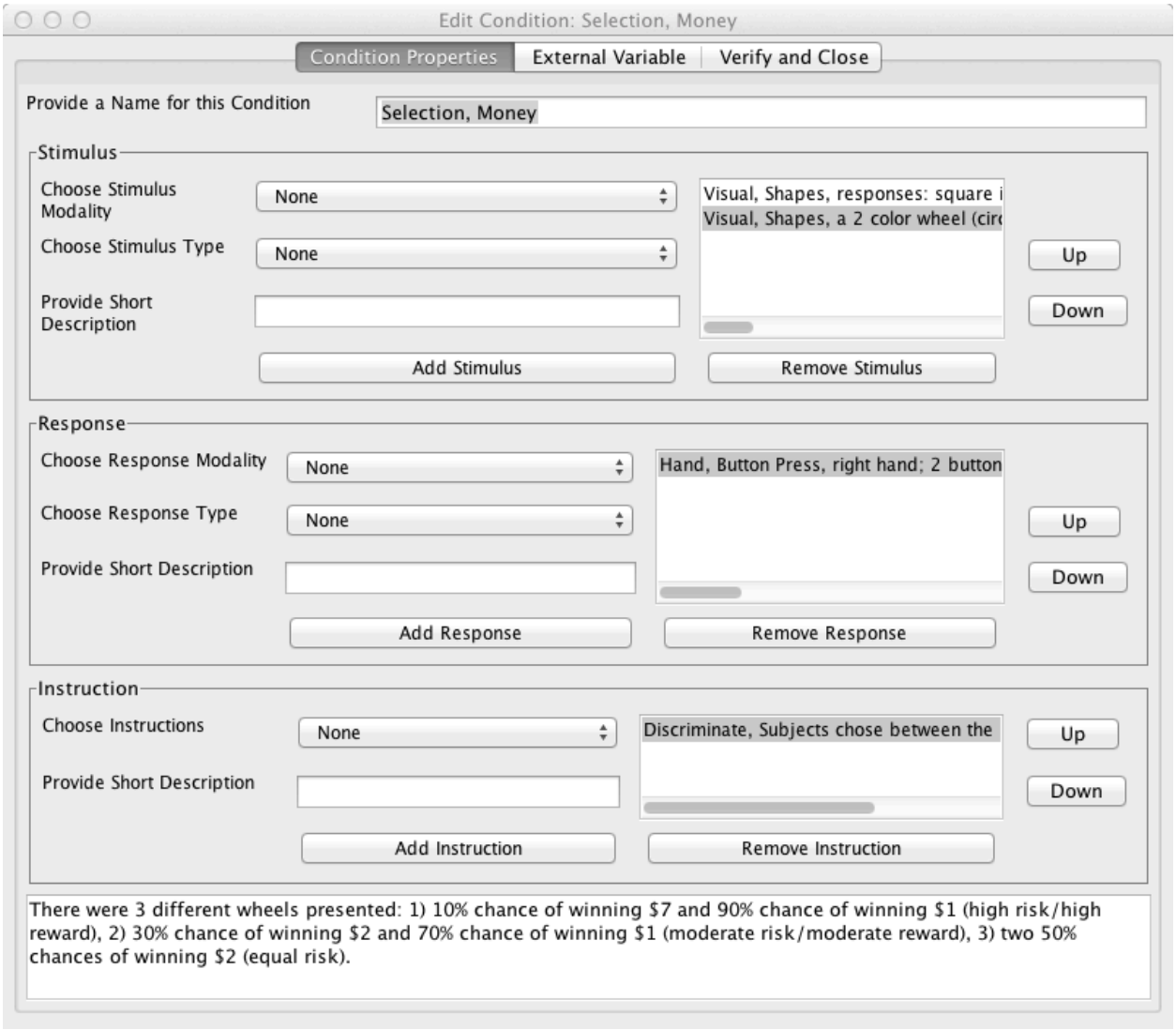
Conditions



Enter only conditions used in the experiments, including the control conditions, e.g., Rest or Baseline.

To change the order listed to better reflect the order used in the experiment, click the 'Shift Up' or 'Shift Down' button at the bottom of the window.

Condition Properties: Stimulus, Response, and Instructions



Provide a Name for this Condition

Use the same naming system as defined in the prose description. Again, try to keep the naming convention of the paper, but use your best judgment. Sometimes authors can be confusing and will invent a very long condition name for a simple task. If, in the interest of brevity, it is necessary to formulate your own condition names, then do so.

Choose a Stimulus Modality

Choose the sensory mechanism through which the subject was stimulated. That is, what was used to stimulate one of their five senses while they were in the scanner?

Choose Stimulus Type

Select the specific stimulus from the drop-down menu. If these choices do not match the stimulus exactly, choose 'Other' then click the ‘Add’ button.

Provide Short Description

Fill in any additional details about the stimulus that are necessary for a firm understanding of the paper or that add interest to the study. This might include information about the exact type of stimulus not apparent from the 'Stimulus Type' selected, for example, "Letter Strings" or "Spanish Nouns". **Don't forget to click on "Add".**

Choose Overt Response Modality

Enter measurable responses only, for example, imagined movement and silent verb generation are covert responses and should not be entered. If the response was a button press, choose 'Hand' for the modality.

Choose Overt Response Type

Select the appropriate response type. Use the Overt Response Type 'Ocular' for saccades or eye movement only, not for simply looking at something. **Don't forget to click on "Add".**

Provide Short Description

Fill in any additional details about the response that are truly necessary for a firm understanding of the study.

Choose Instructions

Choose the instruction that best describes those used in the study. If a subject was instructed to read words aloud, choose 'Read' as the instruction and 'Speech' as the subject's response; rather than choosing 'Speak' as the instruction. If the instructions were to attend and then press a button upon perceiving a target, it is only necessary that you enter the instruction to 'Attend'. 'Button Press' should be entered only as a response.

- Do not confuse "detect" and "discriminate": Detect is to discover the presence of, i.e., does target exist? While discriminate is to distinguish from another "like" object by discerning differences, i.e., choosing a target.
- Do not use "attend" every time the subjects pay attention to the stimulus, otherwise it will be coded in every paper. Only use "attend" in studies where the subjects' only instruction is to pay attention to the stimuli.

Provide Short Description

Any additional details about instructions that are necessary for a firm understanding of the study should be entered in this field. Please use a **complete sentence** to describe the instructions (e.g., Subjects generated verbs in response to the presented nouns). Also, please use the past tense. **Don't forget to click on "Add".**

Short Description – Bottom Window

Use this space to enter any summary or clarifying information that pertains to the condition as a whole, (i.e., that cannot be broken into one of the three components [stimulus, response, instructions]). If the description CAN be classified as one of the three components, then enter the desired information into one of the short description fields listed above.

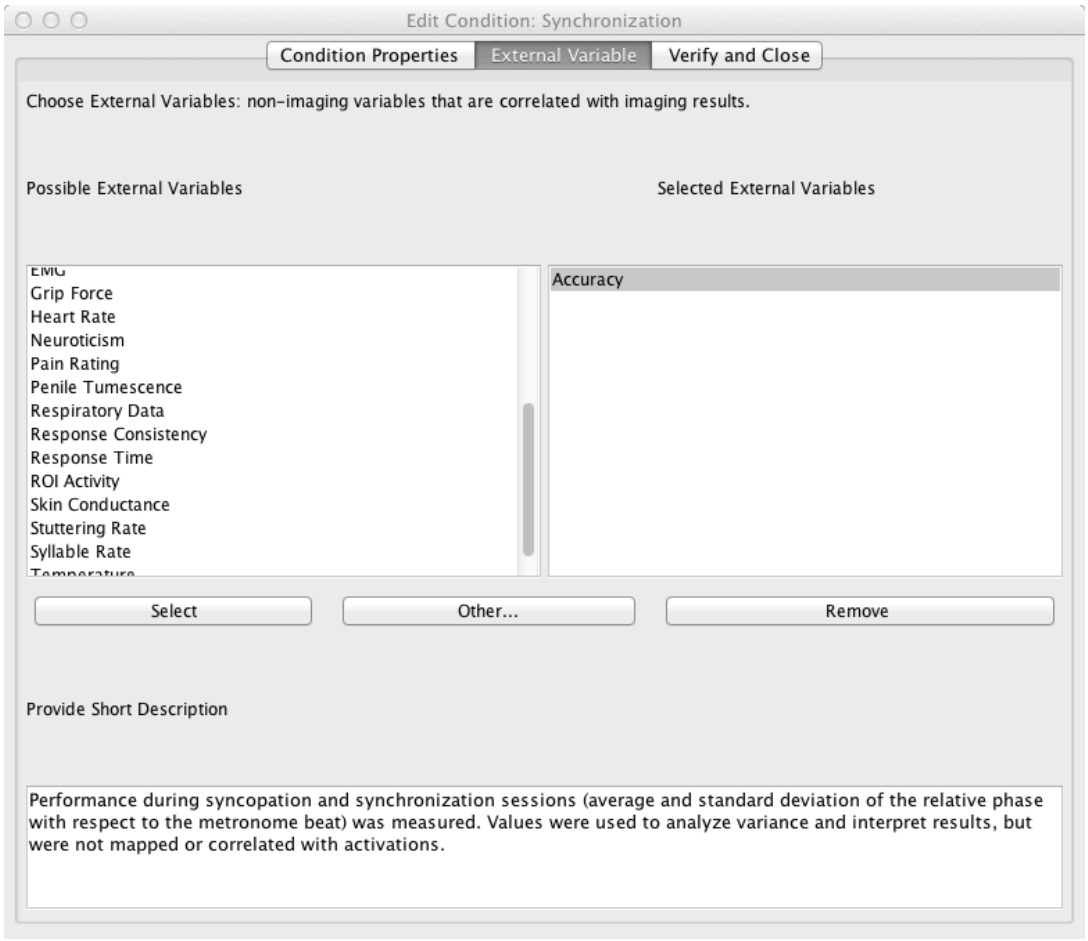
Also, making a mental note of the differences in various conditions of your paper during entry will assist in identifying the contrast when entering experiment information later on.

Before exiting this panel, make sure that the way this condition differs from the other condition(s) in your paper can be determined by looking at the Conditions panel (i.e., don't duplicate conditions).

To edit existing conditions, simply double-click on the selected field entry. This will populate the condition information back into the drop-down menus so that you may edit the details.

If necessary, use the 'Up/Down' buttons to organize the condition information to reference time-dependent stimuli, responses, or instructions (stimuli presented first listed first, while stimuli presented later listed second).

Conditions: External Variable



This menu is primarily intended for studies wherein an external variable was correlated with brain activity. If a correlation included an external variable, enter the variable here. After selecting the desired option from the menu, click the 'Select' button.

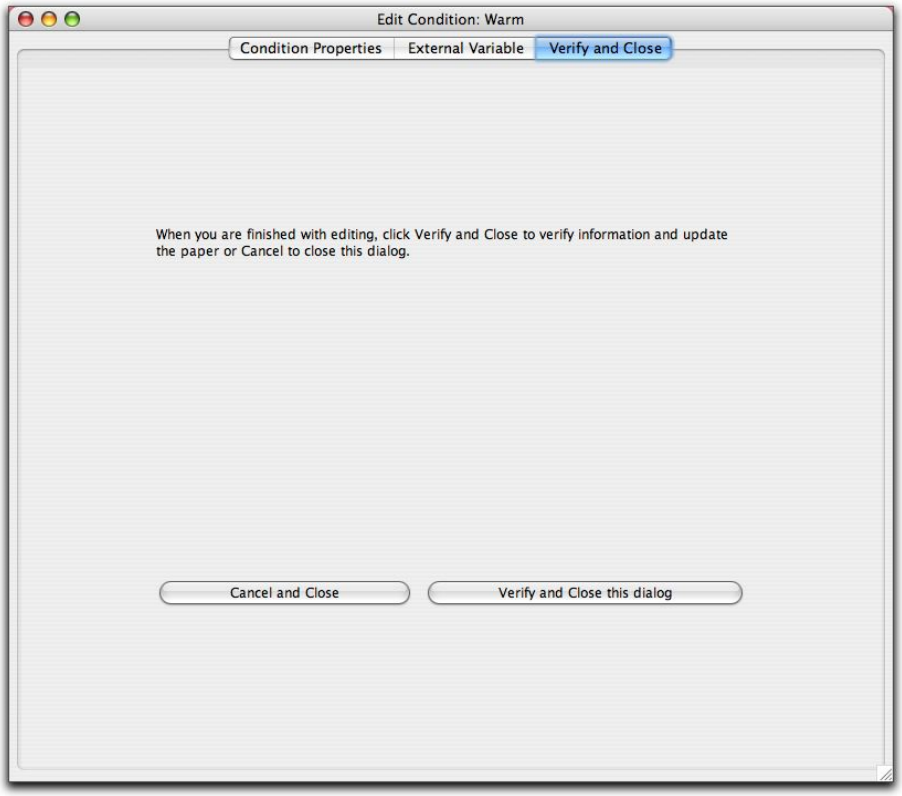
The external variable is any measurement taken during the scan, e.g., eye movement, heart rate, accuracy, temperature, etc. In order to be listed here, the external variable must be specifically stated in the study. When there is no external variable, select "None". Many studies record accuracy and response time. Do not forget to include these external variables.

Provide Short Description:

In most instances one of the following scenarios will pertain:

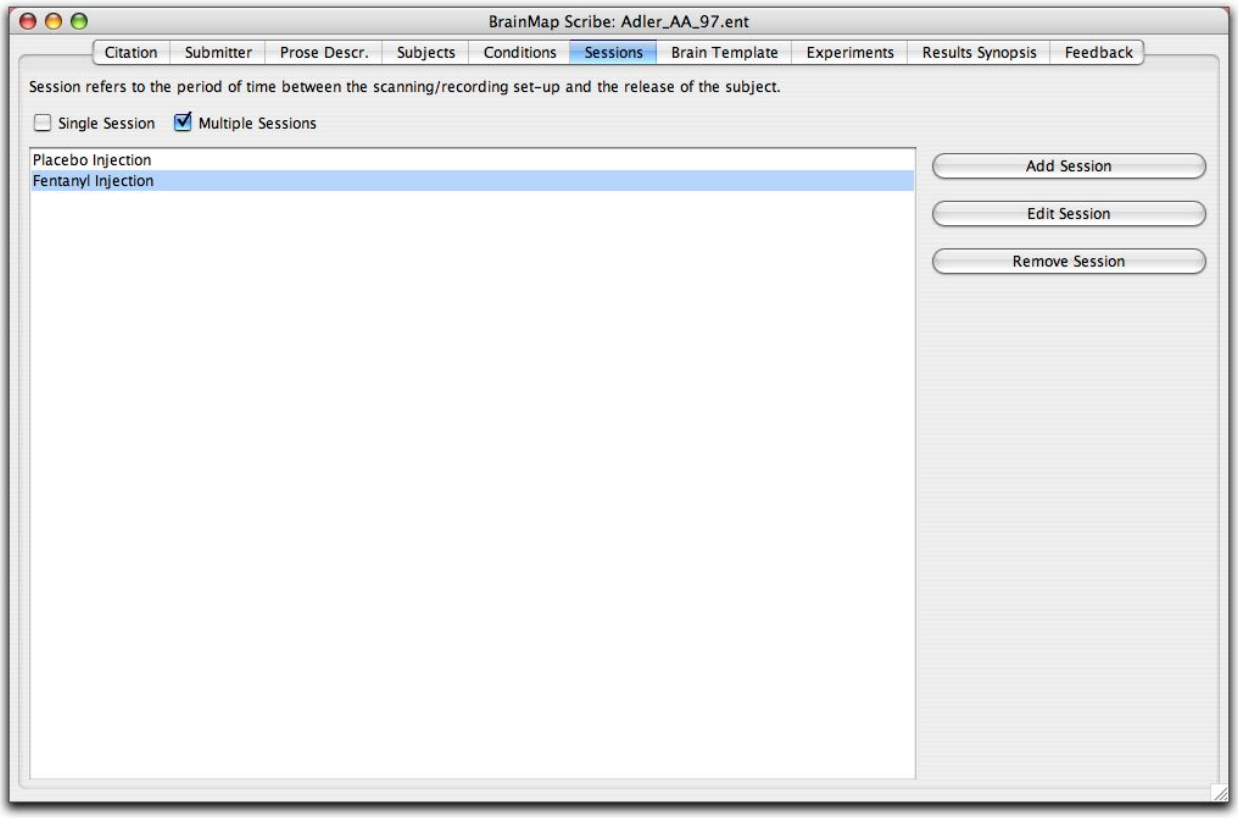
1. EV was measured, but not in fact used (i.e., often EEG measured to ensure activation is task-related).
2. EV was measured and used to drive analysis (i.e., correlating performance, response rate, etc. with an image).
3. EV was measured and used to clarify results (i.e., behavioral analysis used to clarify neuroimaging findings).

Conditions: Verify and Close


Edit Condition: Warm
Condition Properties
External Variable
Verify and Close
When you are finished with editing, click Verify and Close to verify information and update the paper or Cancel to close this dialog.
Cancel and Close
Verify and Close this dialog

Once all condition information has been entered, click on the 'Verify and Close this dialog' button. To discard the changes, select 'Cancel and Close'.

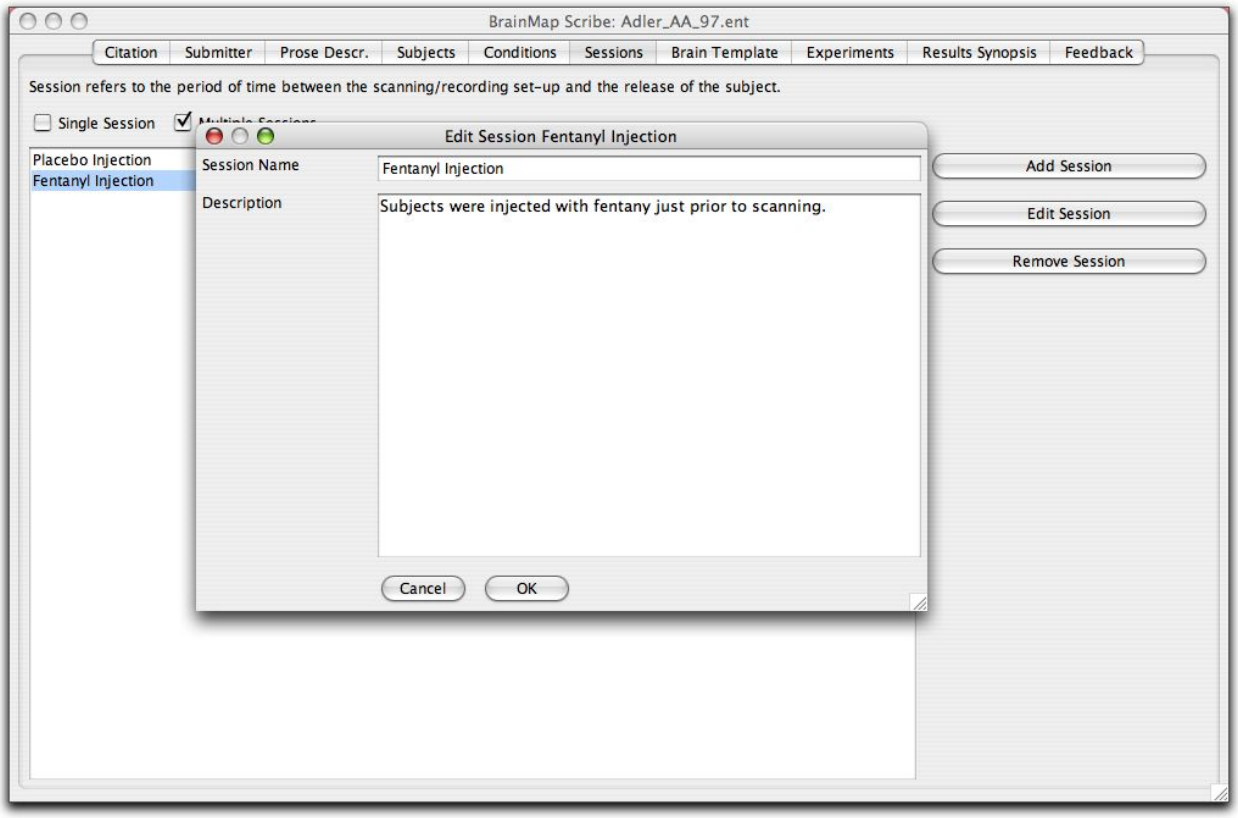
Sessions



'Sessions' refers to the period of time between the scanning/recording set-up and the release of a subject. **Most studies occur during only one session**. If a subject is set up, released and then set up again, the second set-up marks the beginning of a second session. Before-and-after-treatment studies and before-and-after-practice studies would involve multiple sessions.

- For one-session studies, no entries are required on this panel.
- For multiple sessions, check on 'Multiple Sessions' and click the 'Add Session' button. A message box will then appear prompting you to enter at least two sessions.
- If your paper includes multiple sessions, be sure to include this design in the prose description.

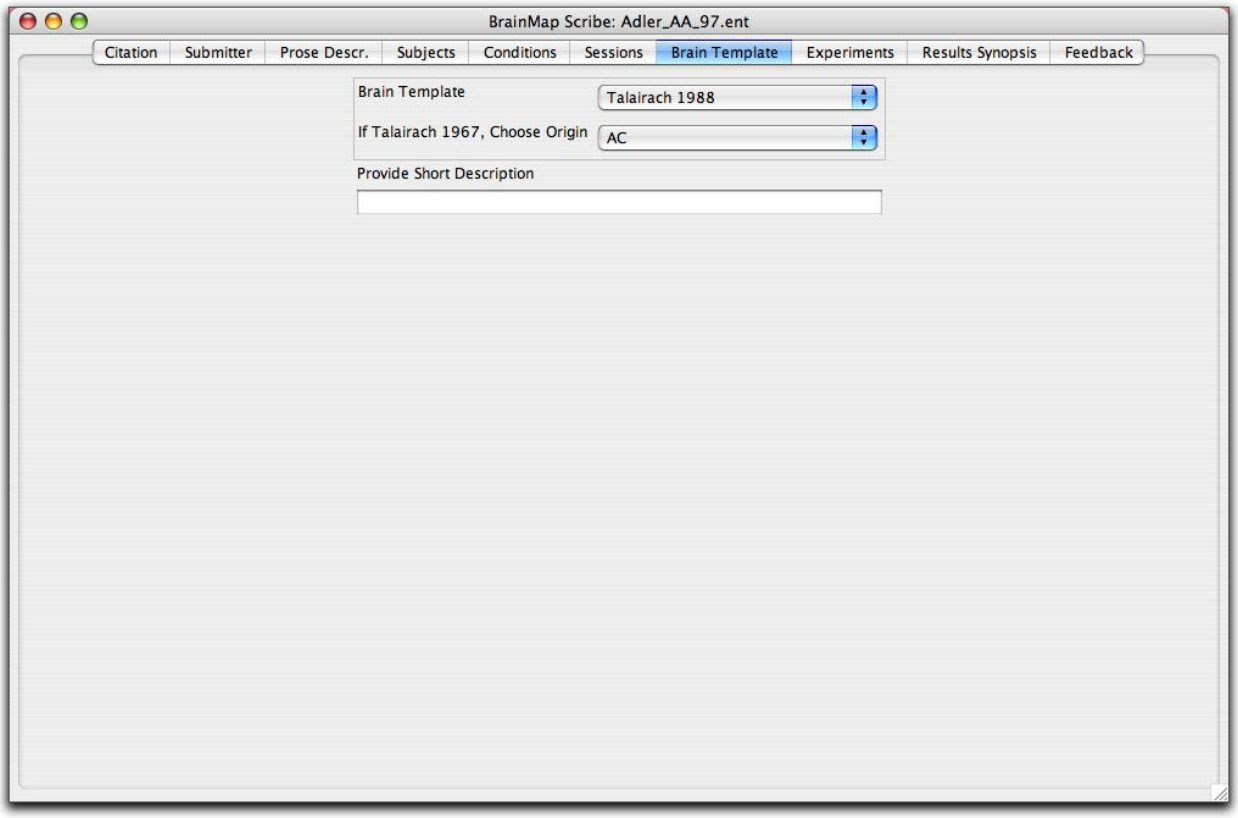
Sessions: Session Name



Give the session a brief name, for example “Before Treatment” or “After Therapy”.

Description of this Session:
Describe the session, including sufficient detail to distinguish this session from other sessions and to give a firm understanding of the study. Please use a complete sentence to describe the session.

Brain Template



Click on the drop-down menu provided and choose the brain template used.

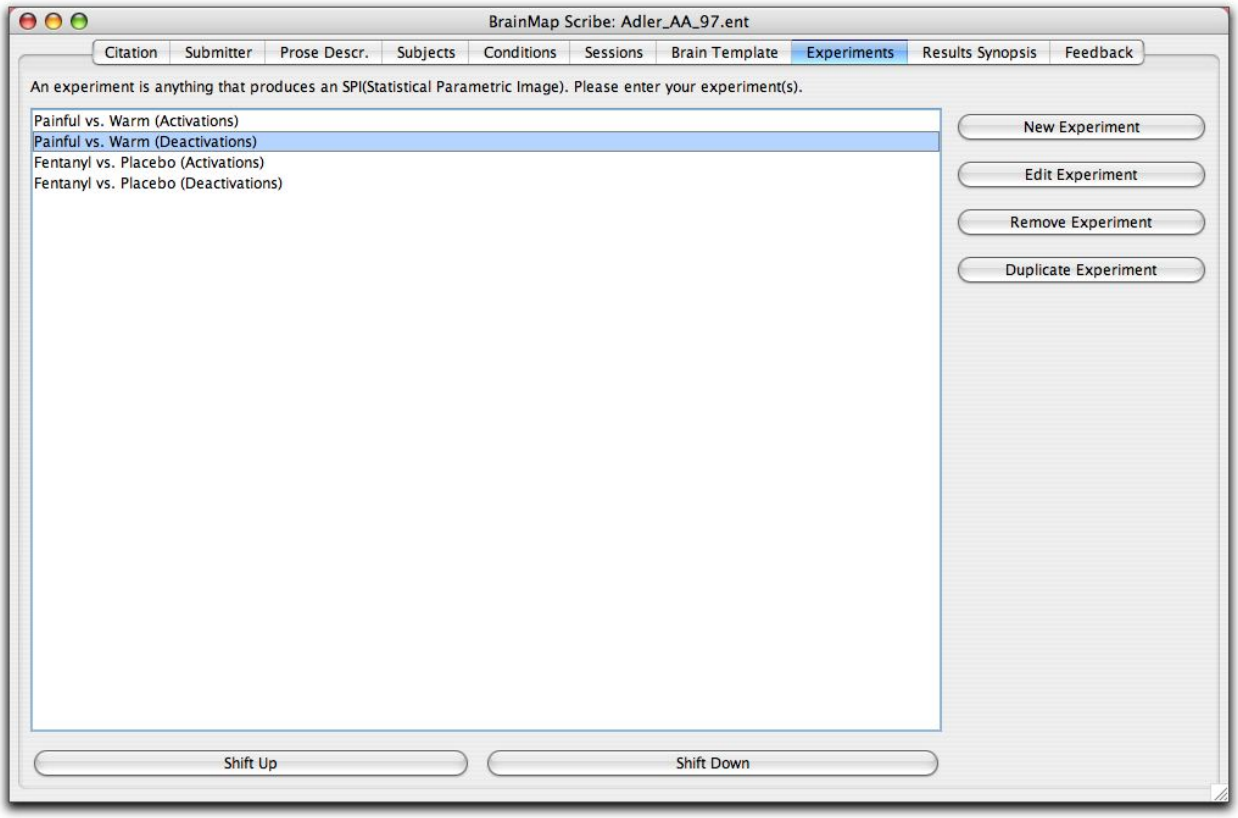
Short Description

Enter the software used for spatial normalization (e.g., “SPM96”, “FSL”, “SPM99, then converted to Talairach space using the Brett transform”, etc.).

All MNI coordinates will be automatically converted to Talairach space using the icbm2tal transform (Lancaster et al., 2007). All MNI coordinates converted to Talairach space via the Brett transform **in the original publication** will be subject to 2 transforms: (1) reverse-Brett to convert back to MNI space and (2) icbm2tal for correct transformation from MNI to Talairach space.

If MNI coordinates are reported in Talairach form and the transform is not specified in the text, please indicate this in the short description.

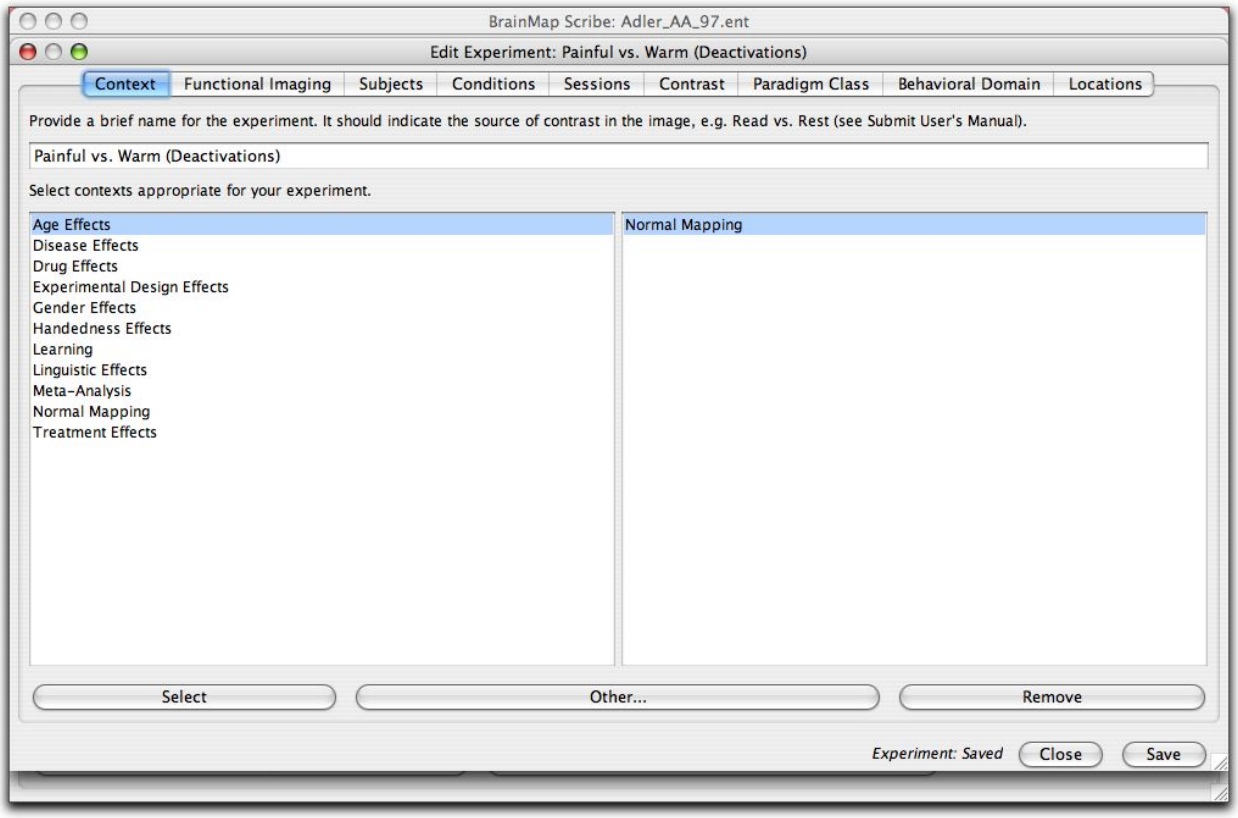
Experiments



To enter several similar experiments, enter the information for the first experiment and verify and close it. Then click on its name and click the 'Duplicate Experiment' button. The experiment data will be copied into a new experiment. Enter a new name for the new experiment, making changes to the existing data as needed.

Shortcut: Many experiments are very similar within a paper, so it can save time if you enter in all the information for the first experiment EXCEPT for the coordinates. Then save the experiment, duplicate it, and edit the duplication(s) for the additional experiment(s). The final step is to go back and enter in the coordinates for all the experiments once they have been created.

Experiments: Context



Provide a brief name for the experiment

The names entered here must be the same as those used in the Prose Panel.

Abbreviations are acceptable but the first use must be defined then the subsequent references can just be entered in the abbreviated form.

Select contexts appropriate for the experiment

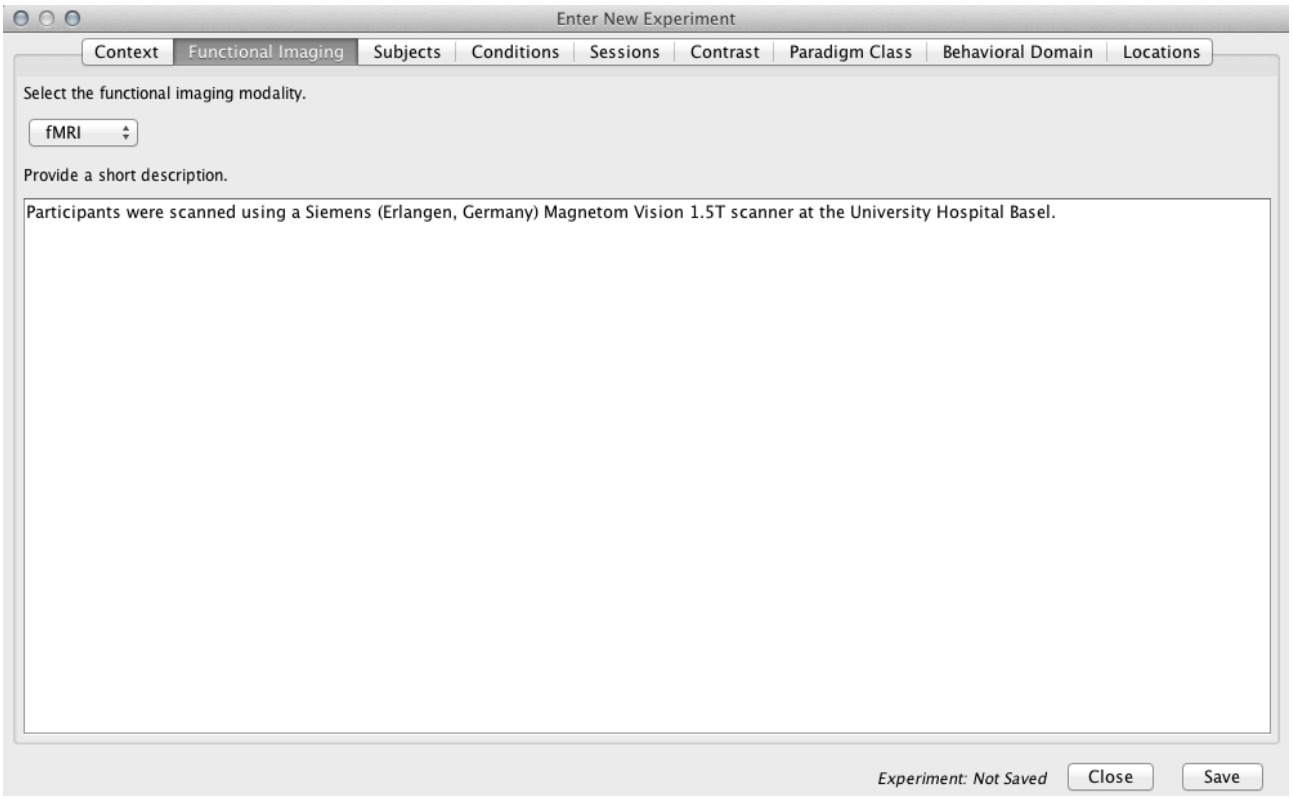
'Context' refers to the broadest category to which an experiment belongs to within the realm of brain imaging. Most frequently, the context of "Disease Effects" will be selected if there is solely a patient group or a comparison between a patient group and healthy controls. "Normal Mapping" will only be selected if the subject group(s) included in the respective experiment were **only** healthy controls.

If "Drug Effects" is selected, you must also select the appropriate pharmacology class in order to save the experiment.

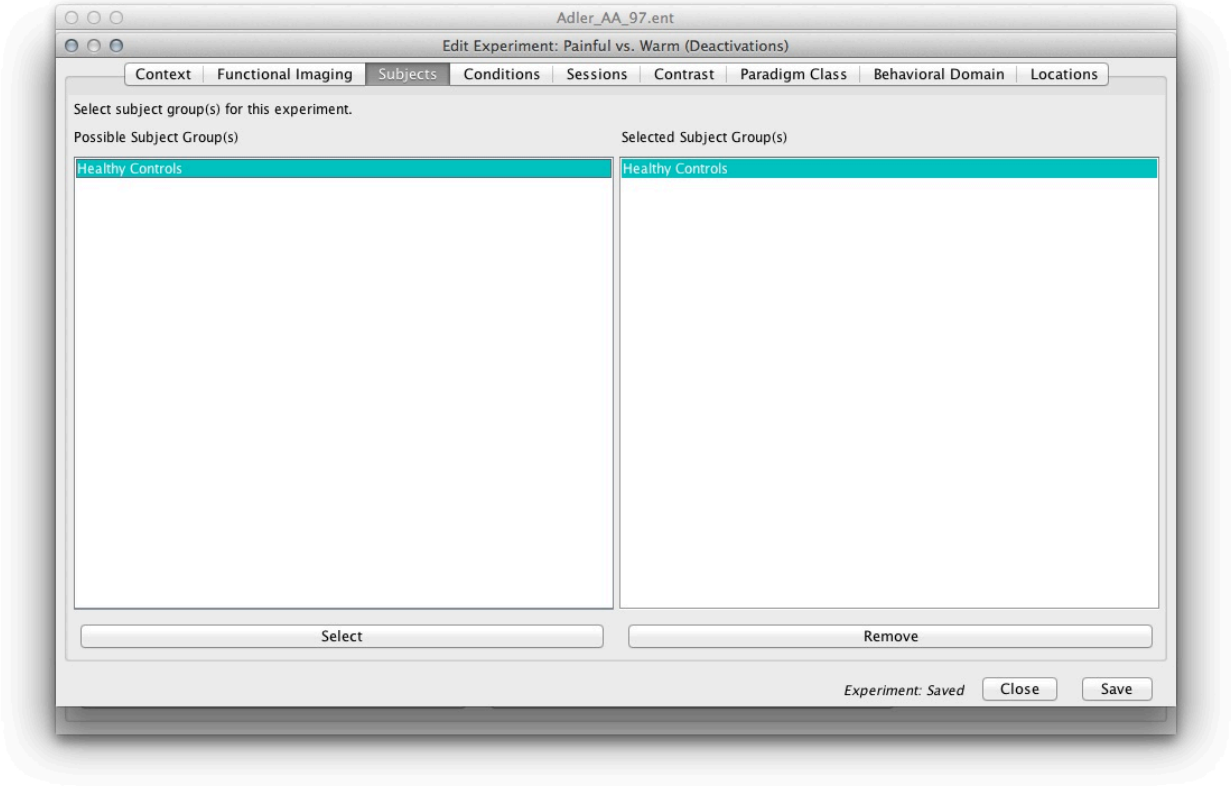
"Experimental Design Effects" is **ONLY** selected for studies in which a technical aspect of the paradigm is being manipulated, such as when comparing the effect of the rate of presentation of the stimuli ("Self-Paced n-back vs. Fixed-Paced n-back" or "Slow Words vs. Fast Words". This is NOT the appropriate context when simply contrasting two or more conditions within healthy subjects – that is "Normal Mapping".

Experiments: Functional Imaging

Select the functional modality from the pull-down menu. Please provide the magnet strength if available, along with any other imaging relevant information.

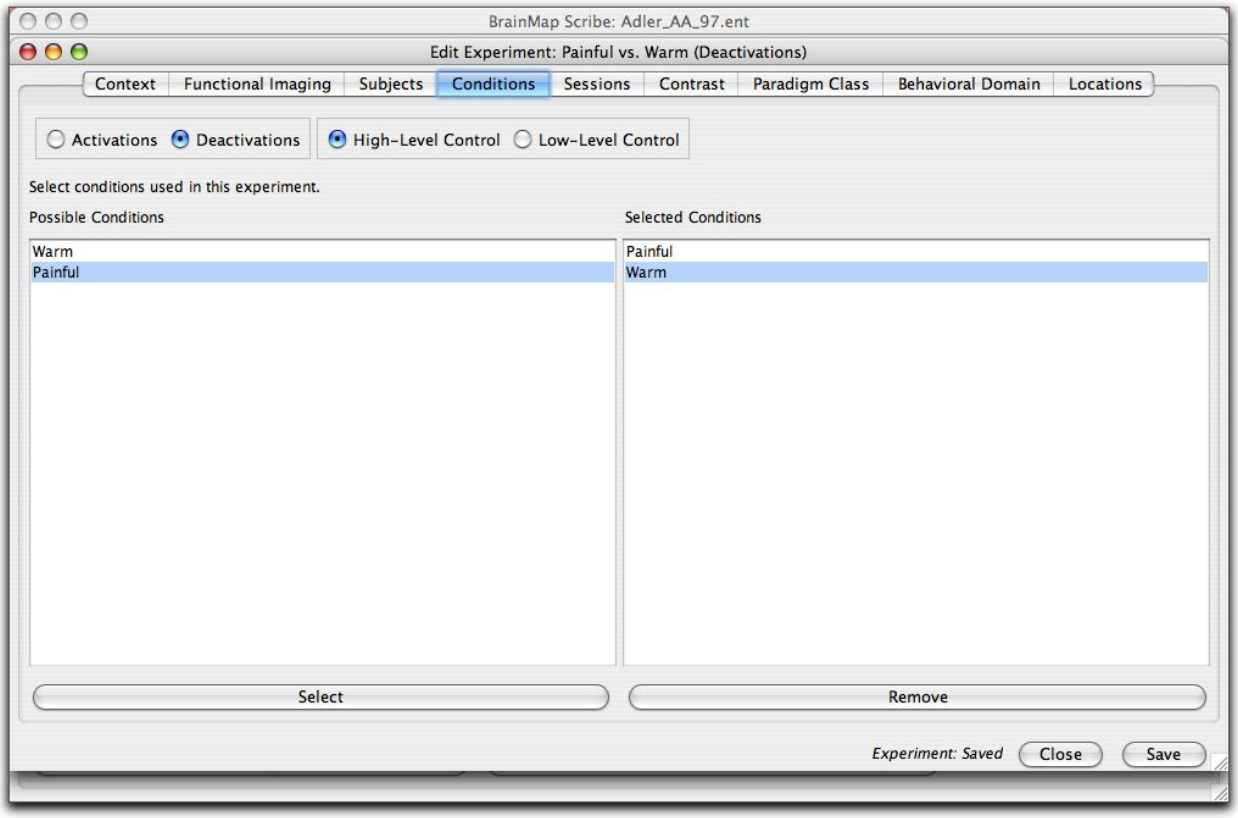


Experiments: Subjects



This panel contains the list of groups entered on the previous 'Subjects' panel. Click on the group used for the experiment you are presently entering and then click 'Select'.

Experiments: Conditions

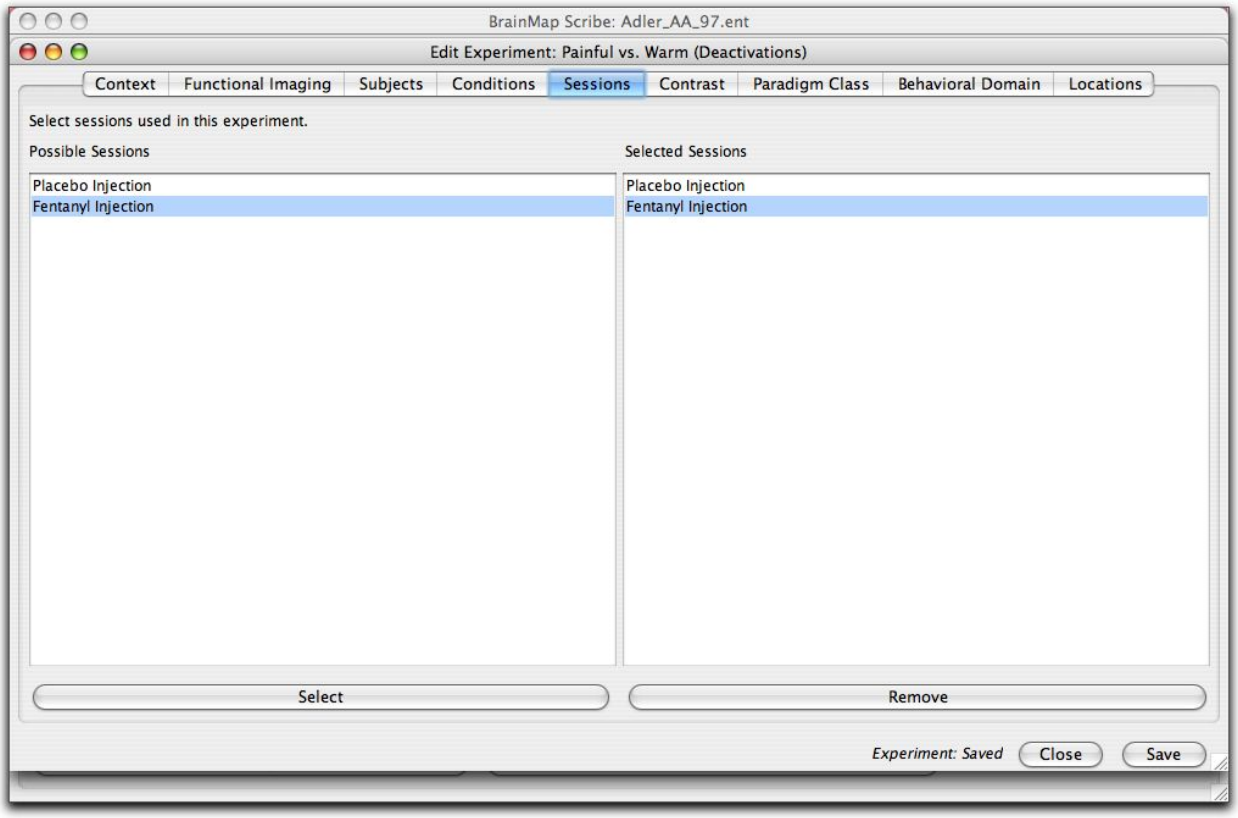


Check the box to indicate whether this experiment reports activations (increases) or deactivations (decreases) and whether a high- or low-level of control was used to contrast with the activation condition. **Only select 'Low-Level Control' for rest or fixation control conditions**.

Select Conditions

This panel contains the names of the conditions you provided previously on the 'Conditions' panel. Choose the conditions included in this experiment. After selecting a condition from the menu, click the 'Select' button.

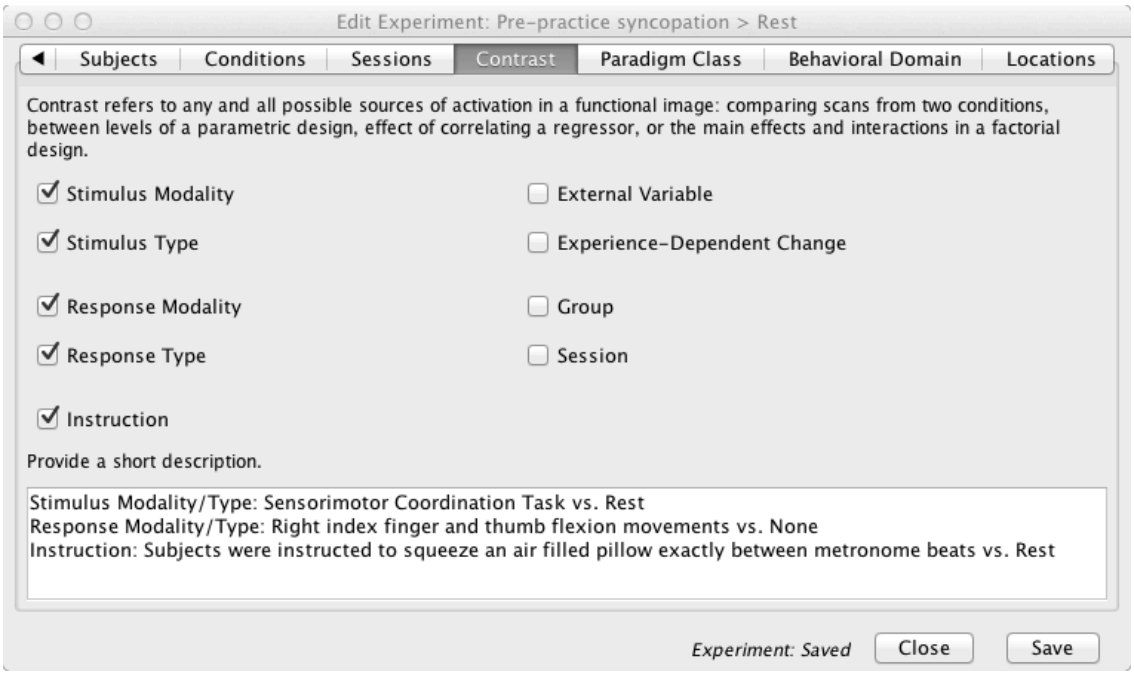
Experiments: Sessions



Select Sessions

This panel contains the names of the sessions previously provided on the 'Sessions' panel. If the paper included more than one session, choose the session used in this experiment. If not, ignore this panel.

Experiments: Contrast


Edit Experiment: Pre-practice syncopation > Rest
Subjects
Conditions
Sessions
Contrast
Paradigm Class
Behavioral Domain
Locations
Contrast refers to any and all possible sources of activation in a functional image: comparing scans from two conditions, between levels of a parametric design, effect of correlating a regressor, or the main effects and interactions in a factorial design.
Stimulus Modality
Stimulus Type
Response Modality
Response Type
Instruction
External Variable
Experience-Dependent Change
Group
Session
Provide a short description.
Stimulus Modality/Type: Sensorimotor Coordination Task vs. Rest
Response Modality/Type: Right index finger and thumb flexion movements vs. None
Instruction: Subjects were instructed to squeeze an air filled pillow exactly between metronome beats vs. Rest
Experiment: Saved
Close
Save

Contrast

The purpose of contrast is to identify the key aspect of the study. In a given experiment, the contrast field indicates how the conditions being compared in an experiment are different.

To choose the source of contrast in the experiment, click on the box to the left of the description. Make as many choices as appropriate for each experiment.

Provide a short description

Use the blank window in the lower half of this panel to summarize and clarify the contrast of a given experiment. If "External Variable" is selected, please provide the external variable in this window.

Example 1: For the Contrast field, you have the opportunity to indicate which aspects of the conditions differed in a specific experiment. For instance, an experiment might involve the following: Condition 1: the subject focused on a fixation point while a checkerboard wedge stimulated one part of the visual field. There was no response. Condition 2: the subject focused on a fixation point while a checkerboard wedge stimulated a more peripheral part of the visual field. There was no response. You notice that both are described as Stimulus Modality: Visual; Response Modality: None; Response Type: None; Instruction: Attend. The point of interest of this experiment is the different areas stimulated by the checkerboard. In this experiment, the choice of contrast selected would be Stimulus Type because it was the stimulus that differed between conditions. All other fields would remain unchecked.

Example 2: If the experiment involved Condition 1: subject viewed nouns on a screen and was asked to generate verbs aloud which pertain to the nouns on the screen, and Condition 2: subject viewed nouns on a screen and was asked to read the words aloud, the only difference here is in the instructions. For

both conditions, the stimulus is visual words, and the response is speech. In this case, the instructions for Condition 1 would be 'Generate' and the instructions for Condition 2 would be 'Read'. It is implied that during Condition 1 the subject had to read the nouns first in order to generate verbs. Therefore, the contrast between the conditions is only in 'Instructions'. All other fields would remain unchecked.

Example 3: If the experiment involved Condition 1: subject listened to nouns presented aurally one at a time with instructions to generate verbs which pertain to the nouns, and Condition 2: subject listened to nouns presented one at a time and was instructed to generate words that rhyme with the nouns, then in this case, all three fields (stimulus, response, instructions) would be entered identically for the two conditions. However, the generation performed in each condition was indeed different. Therefore, enter again the contrast as 'Instructions'. All other fields would remain unchecked.

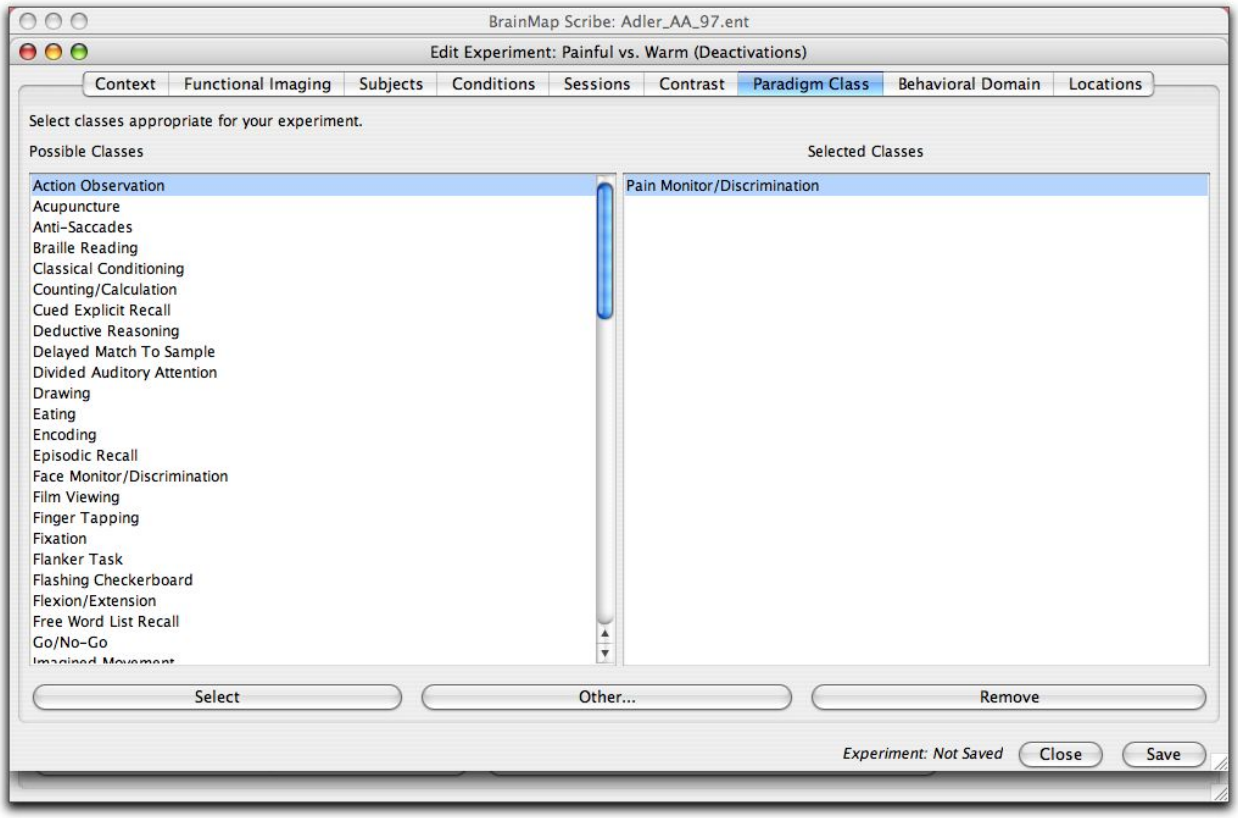
Example 4: Group Contrast: If the conditions of an experiment are identical, but were endured by two different groups, this would be considered a Group contrast. In this case, click the box to the left of 'Group' and all other boxes would remain unchecked.

Example 5: Session Contrast: If all of the conditions of an experiment were identical, and were endured by only one group, but during more than one session, this would be considered a Session contrast. Select the 'Session' box and all other boxes would remain unchecked.

Example 6: External Variable Contrast: If an experiment included an external variable with which to conduct a correlation with brain activity, and this was the means for cultivating brain images, choose the box for 'External Variable'. This contrast type must be selected for all experiments that investigated the accuracy of the responses.

Example 7: Experience-Dependent Change: If the experimental results could have been affected by experience, for example, learning, order, priming, repetition, or training, select the box for 'Experience-Dependent Change'.

Experiments: Paradigm Class

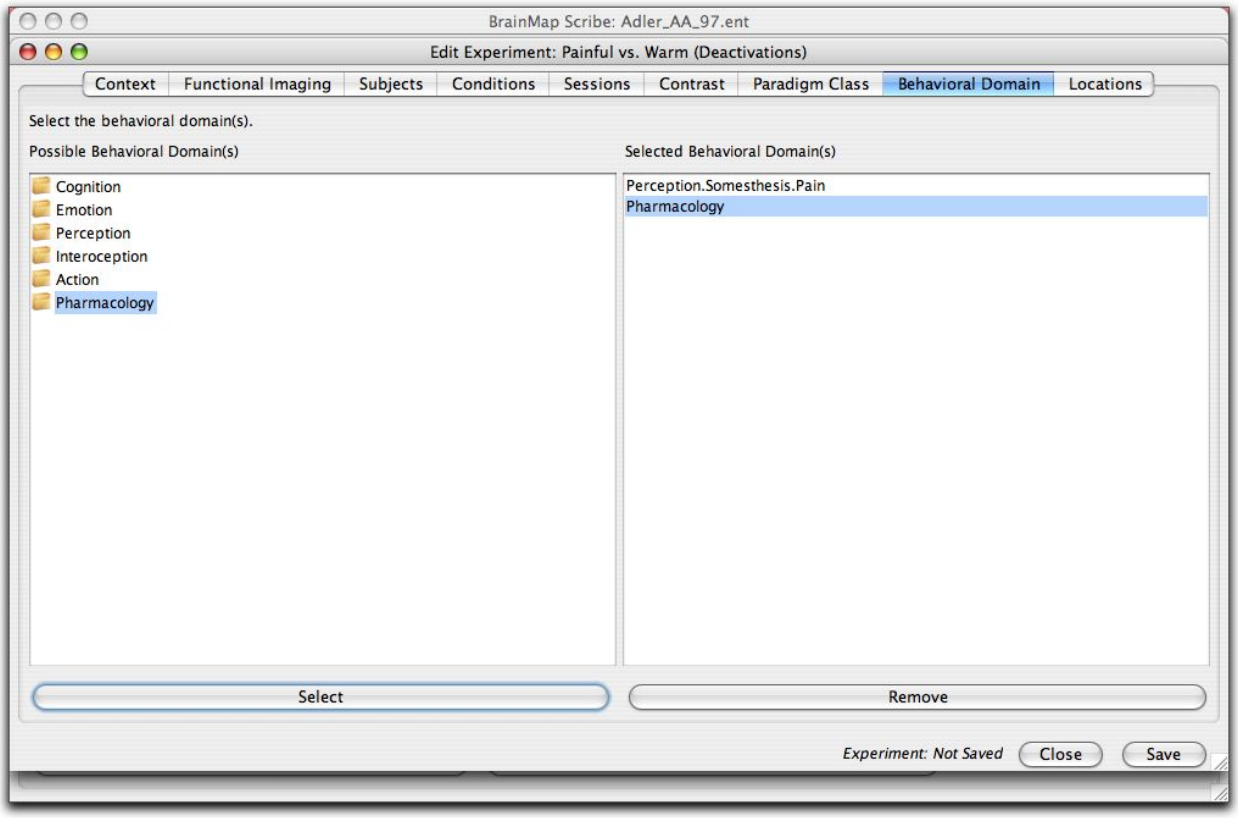


Paradigm Class

Paradigm Class refers to those experimental paradigms that have been used repeatedly by different researchers. Some have become widely known and accepted by brain imagers and have acquired informal (or formal) names. This list is not intended to include a fitting description of every experimental paradigm imaginable, but evolves with the field.

Select only the Paradigm Class that fits the Activation condition. For example, if the Activation condition is the Stroop task, and the Control condition is Fixation, then for Activation – Control, select Stroop only, not Stroop AND Fixation.

Experiments: Behavioral Domain



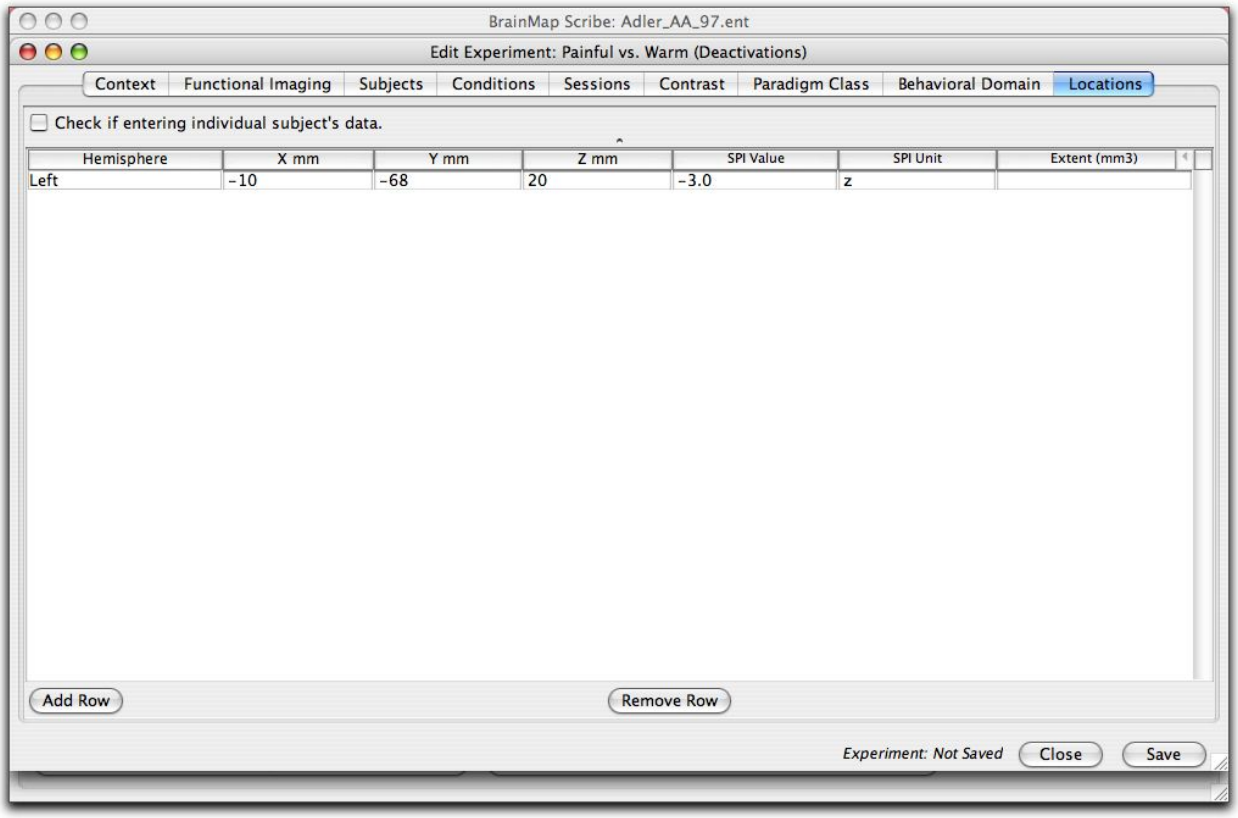
Behavioral Domain

The categories on the left provide several subcategories as drop-down menus. Double-click on the categories to see the related subcategories. These categories and subcategories classify the mental operations likely to be **isolated by the experimental contrast**.

Select only the Behavioral Domain that fits the Activation condition. For example, if the Activation condition is semantic in nature, and the Control condition is phonological in nature, then for Activation – Control, select Semantics only, not Semantics AND Phonology.

- Use both Behavioral Domains of Cognition.Language.Speech and Action.Execution.Speech with overt speech production, but with covert speech production use only the Behavioral Domain of Cognition.Language.Speech.

Experiments: Locations



Check if entering individual subject's data

Check this box if the coordinates entered are for individual subjects, as opposed to group means.

Hemisphere

Adhere to the standard that **left is negative**. Inspect your table carefully to be sure that all coordinates listed from the left hemisphere have x-values that are negative and those from the right hemisphere are positive. If not, switch the signs of your x-values before entering them into the table.

X mm, Y mm, Z mm

Enter the x-, y-, and z-values as printed in the table (with the exception as noted above).

SPI Value

Enter the SPI value (statistic) reported in the paper, for example: 'z', 't', or 'r'. The z-score or t-statistic can be the mean or the maximum value for the cluster.

SPI Unit

Indicate the variable (z, t, r) entered in the 'SPI Value' column. Do not enter voxel-wise *P* values in the SPI columns.

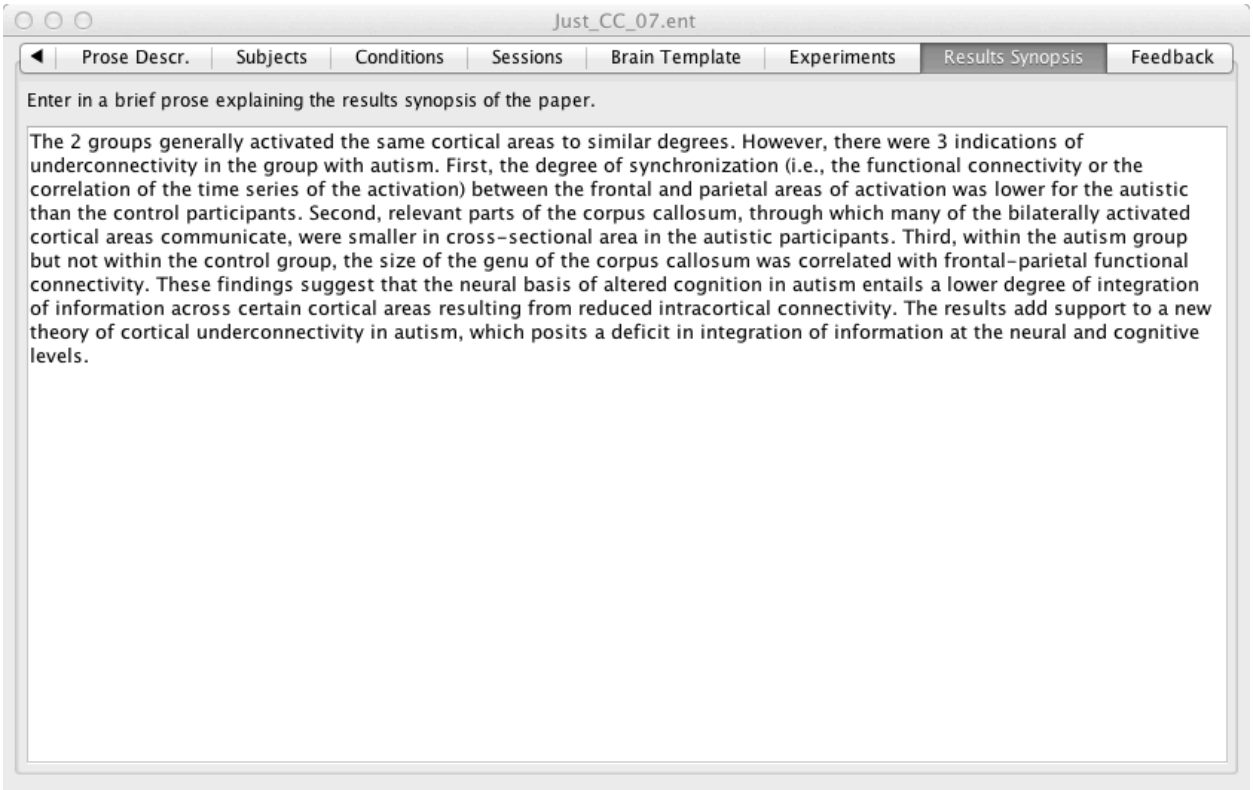
Extent (mm^3)

Report the **extent** (also referred to as **volume** or **size**) of the activation recorded in cubic millimeters. This number usually ranges from the low hundreds to 1000 or 2000. Do not record the number of voxels (not in units of mm^3).

- 1 ml = 1 cc = 1 cm^3 = 1000 mm^3
- 1 μl = 1 mm^3

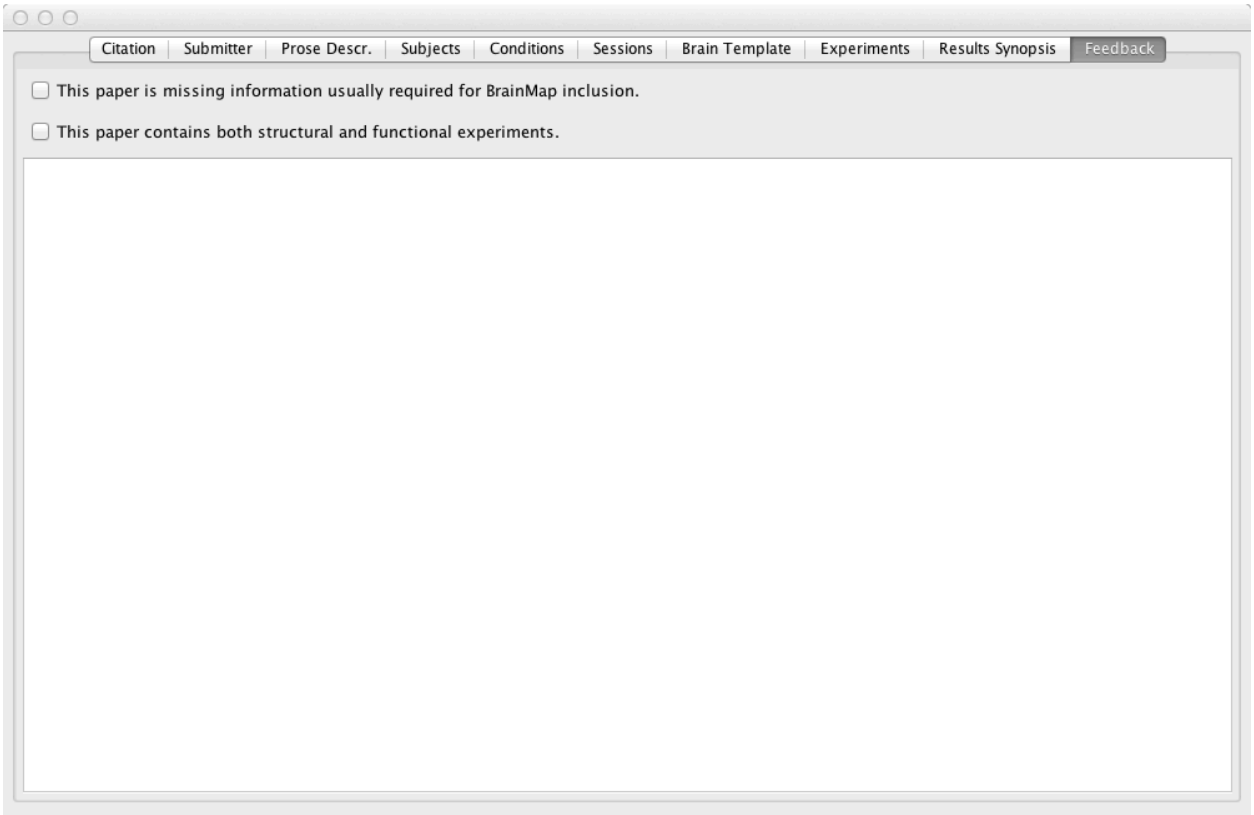
For other conversions, please see: http://www.onlineconversion.com/volume.htm.

Results Synopsis


Just_CC_07.ent
Prose Descr.
Subjects
Conditions
Sessions
Brain Template
Experiments
Results Synopsis
Feedback
Enter in a brief prose explaining the results synopsis of the paper.
The 2 groups generally activated the same cortical areas to similar degrees. However, there were 3 indications of underconnectivity in the group with autism. First, the degree of synchronization (i.e., the functional connectivity or the correlation of the time series of the activation) between the frontal and parietal areas of activation was lower for the autistic than the control participants. Second, relevant parts of the corpus callosum, through which many of the bilaterally activated cortical areas communicate, were smaller in cross-sectional area in the autistic participants. Third, within the autism group but not within the control group, the size of the genu of the corpus callosum was correlated with frontal-parietal functional connectivity. These findings suggest that the neural basis of altered cognition in autism entails a lower degree of integration of information across certain cortical areas resulting from reduced intracortical connectivity. The results add support to a new theory of cortical underconnectivity in autism, which posits a deficit in integration of information at the neural and cognitive levels.

To enter the results synopsis of a paper, copy the published abstract from Medline or PubMed. Delete the first sentences that deal with the introduction, methods, and design of the study and leave only the sentences concerning the results and conclusions. DO NOT edit the synopsis to include your own interpretation of the study. Only change verbiage to reflect a **third person past tense view.**

Feedback

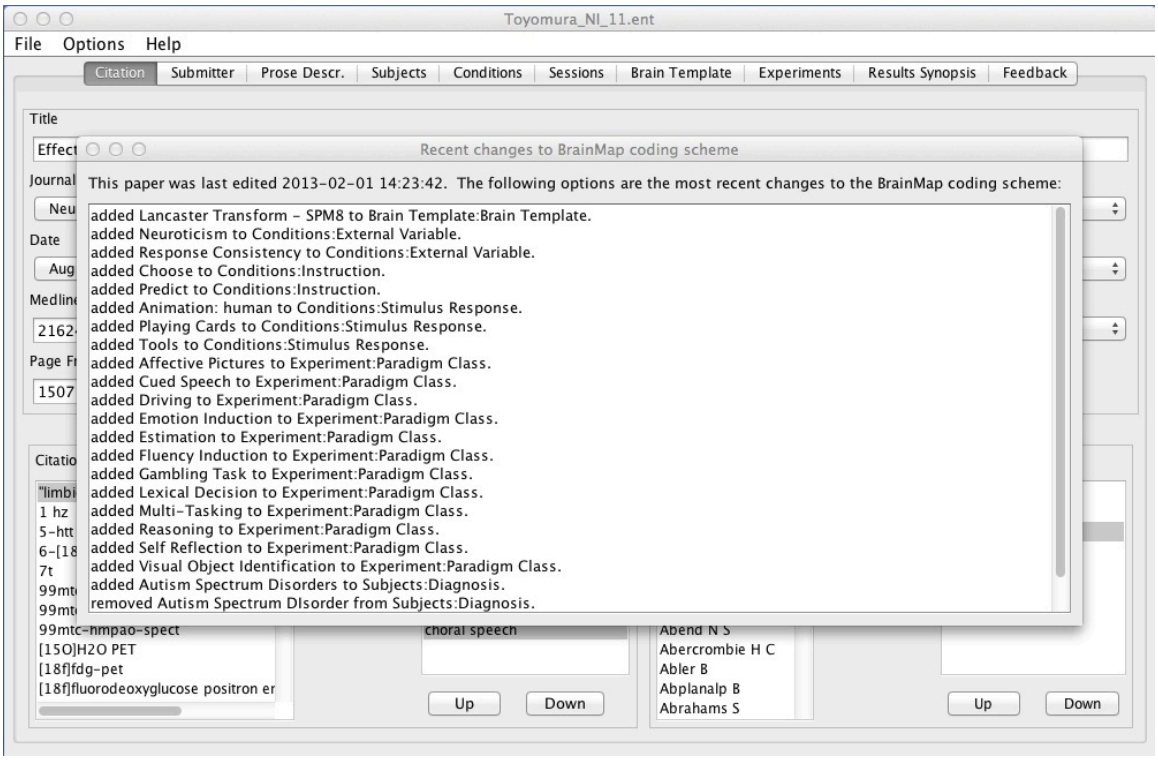


Please use this window to record any questions or comments you may have on the paper. Also, if you feel like the BrainMap Coding scheme did not allow for your paper to be easily coded, please check the box and explain your reasoning in the comment box. The comments in the feedback section will not be reflected in the database and will only be viewed internally by the BrainMap team.

Document whether conditions or experiments were excluded due to not being used in analysis or not being whole-brain. Also indicate if the paper contains a functional/structural study that needs to be coded separately.

When you are finished, email your .ent file and a .pdf of the original article to the BrainMap Research Assistant http://brainmap.org/contact.html for review and insertion into the database.

BrainMap Coding Scheme Changes

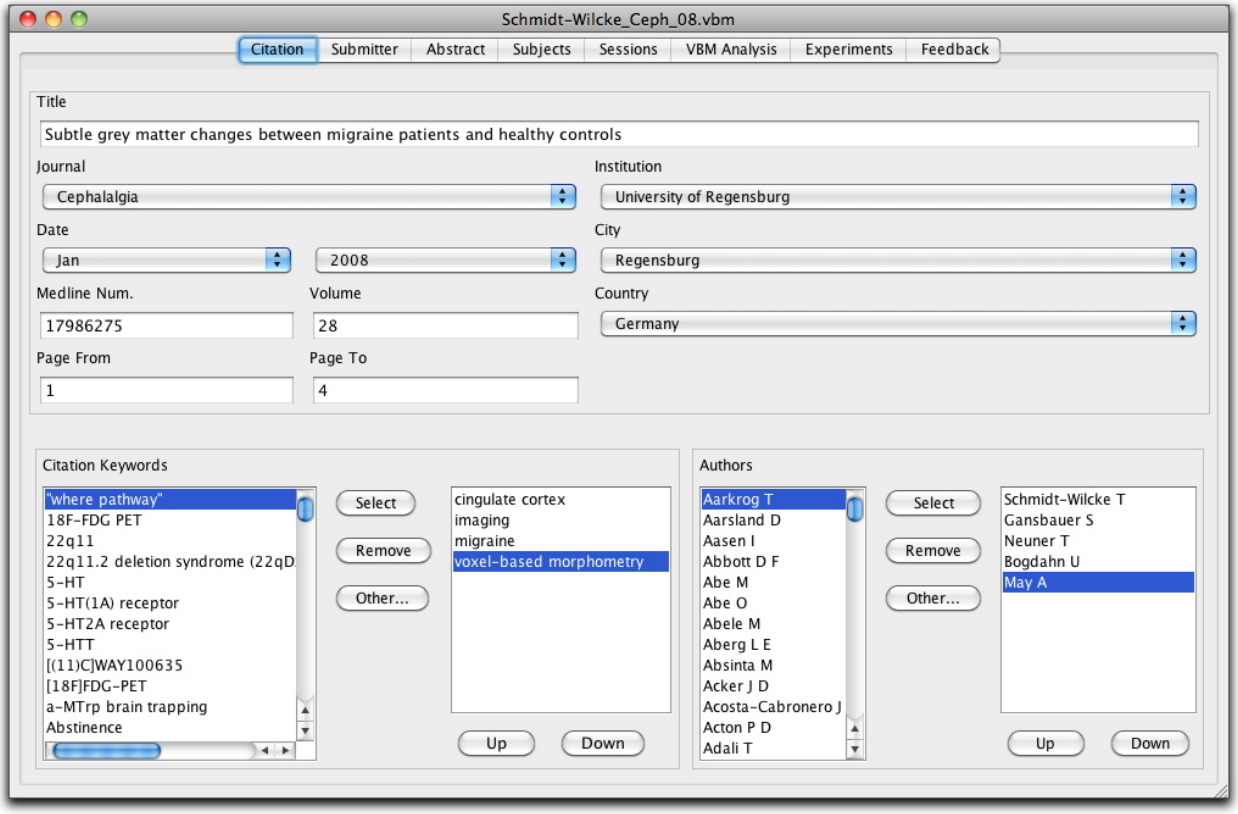

Toyomura_NI_11.ent
File Options Help
Citation Submitter Prose Descr. Subjects Conditions Sessions Brain Template Experiments Results Synopsis Feedback
Title
Recent changes to BrainMap coding scheme
This paper was last edited 2013-02-01 14:23:42. The following options are the most recent changes to the BrainMap coding scheme:
added Lancaster Transform - SPM8 to Brain Template:Brain Template.
added Neuroticism to Conditions:External Variable.
added Response Consistency to Conditions:External Variable.
added Choose to Conditions:Instruction.
added Predict to Conditions:Instruction.
added Animation: human to Conditions:Stimulus Response.
added Playing Cards to Conditions:Stimulus Response.
added Tools to Conditions:Stimulus Response.
added Affective Pictures to Experiment:Paradigm Class.
added Cued Speech to Experiment:Paradigm Class.
added Driving to Experiment:Paradigm Class.
added Emotion Induction to Experiment:Paradigm Class.
added Estimation to Experiment:Paradigm Class.
added Fluency Induction to Experiment:Paradigm Class.
added Gambling Task to Experiment:Paradigm Class.
added Lexical Decision to Experiment:Paradigm Class.
added Multi-Tasking to Experiment:Paradigm Class.
added Reasoning to Experiment:Paradigm Class.
added Self Reflection to Experiment:Paradigm Class.
added Visual Object Identification to Experiment:Paradigm Class.
added Autism Spectrum Disorders to Subjects:Diagnosis.
removed Autism Spectrum DIsorder from Subjects:Diagnosis.
Up
Down
Up
Down

Upon opening a saved ent file, a dialog may appear displaying the most recent changes to the BrainMap Coding scheme. Each line will begin with whether or not the following attribute was added or removed from the Coding Scheme.

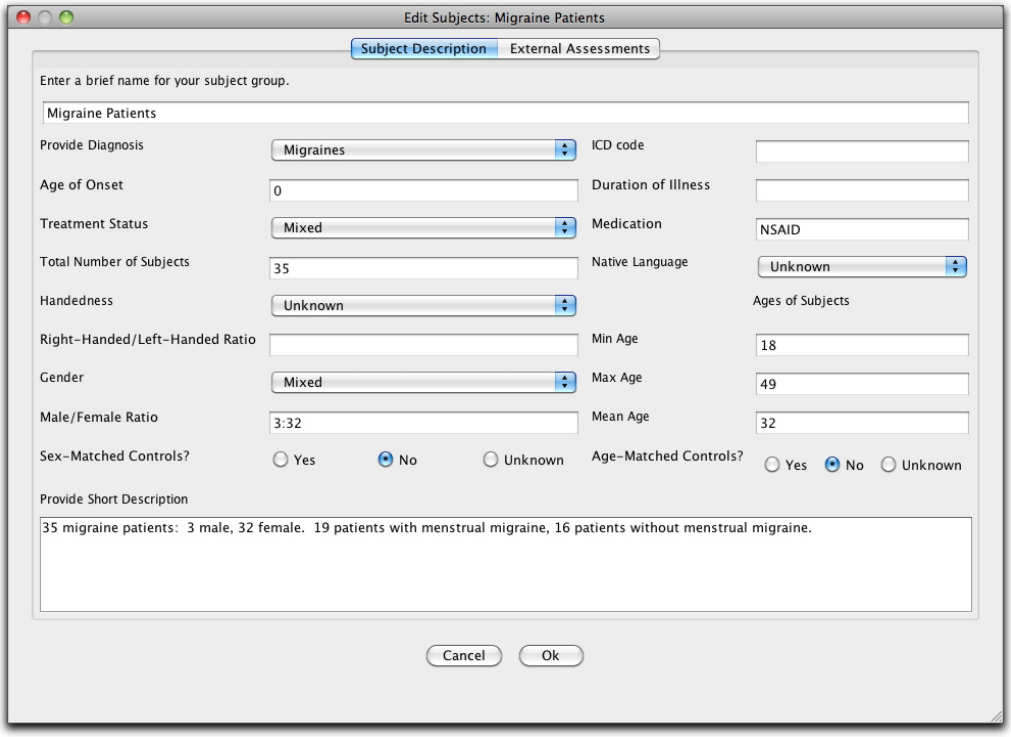
Voxel-Based Morphometry Neuroimaging Submissions

The interface for VBM submissions is very similar to that for functional submissions. Here, we highlight the differences:

- Due to the reduced complexity of VBM papers, there is no Prose Description. Instead, we ask that you paste in the published abstract for your submission.
- The Subjects panel has a few minor modifications, based on the details for the subject groups.
- A new panel, VBM Analysis, has been added for VBM submissions.
- The Experiments panel is greatly simplified in comparison to functional submissions.



Subjects: Subject Group



Name of Subject Group
Provide a brief name for the subject group, for example, “Healthy Controls”.

Provide Diagnosis
Select from the list any medical or psychological conditions.

Age of Onset
Provide the age in years when patients began to experience symptoms of disease/condition. Only integers are allowed.

Treatment Status
Select the treatment (‘Medicated’ or ‘Unmedicated’) from the pull-down list. If ‘Mixed’, provide the number of subjects unmedicated and medicated in the short description.

Total Number of Subjects
Enter the number of subjects studied into the space provided. Only integers are allowed.

Handedness
Choose one option from the menu to describe the handedness of the subject group. Use the ‘Mixed’ option if the subjects had different handedness.

Right-Handed/Left-Handed Ratio
Provide the number of right-handed and left-handed people (ex. 5:5).

Gender
Select the gender from the pull-down menu. If 'Mixed' gender is selected, indicate the number of male and female subjects in the short description.

Male/Female
Provide the number of males and females (ex. 5:5).

Sex-Matched Controls?
Select "Yes" if the non-control (patient) group and control group have the same/similar ratio of males to females.

ICD Code
Most diseases are listed in the International Classification of Diseases (ICD). If the ICD number is unknown (usually the case), then leave this blank.

Duration of Illness
Provide the mean amount of time the patients have been experiencing symptoms (specify days, months, years).

Medication
If subjects are medicated, provide all of the names of the medications. Specify the number of subjects taking each medication in the short description.

Native Language
Choose the native language or languages of the subjects, or add a new language to the list by choosing 'Other' and typing into the window that appears.

Min Age
Fill in 'Min Age', if reported. Only integers are allowed.

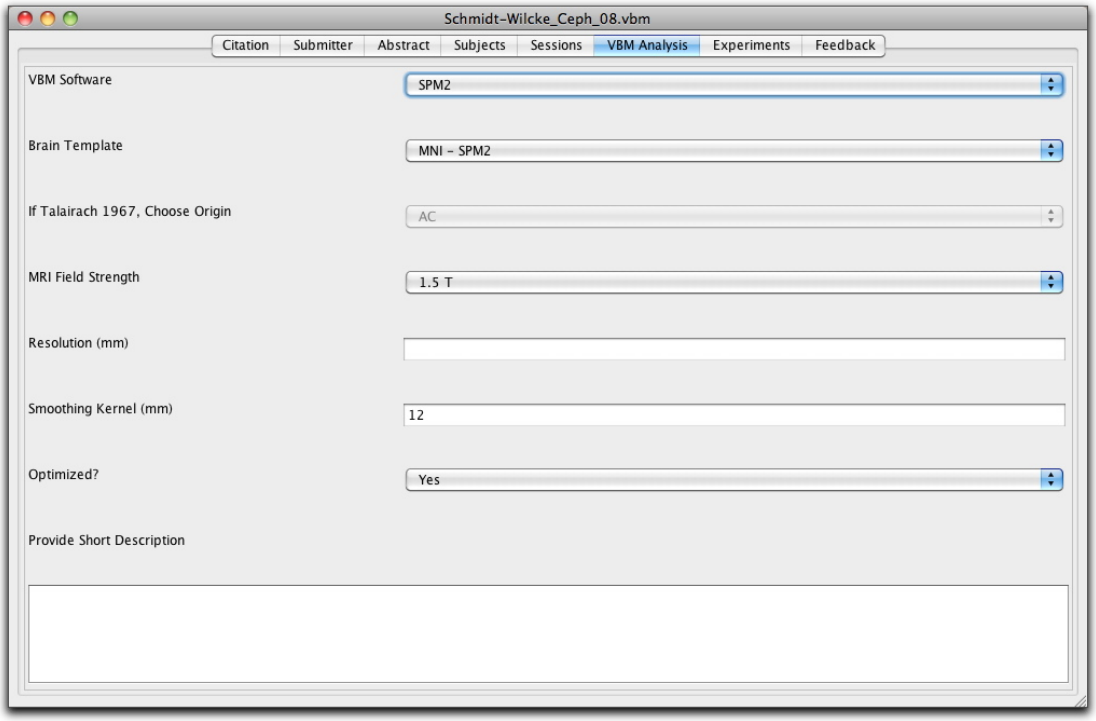
Max Age
Fill in 'Max Age', if reported. Only integers are allowed.

Mean Age
Fill in 'Mean Age', if reported. Only integers are allowed

Age-Matched Controls?
Select "Yes" if the non-control (patient) group and control group have the same/similar mean age.

External Assessments
This menu is primarily intended for studies wherein an external assessment (Test Score, Physical Characteristic, etc.) was correlated with brain morphometry. If an experiment correlated an external assessment with the volume of brain matter and provided x,y,z locations, enter it here. After selecting the desired option from the menu, click the 'Select' button. If the exact external assessment from your paper is not in the list provided, try your best to fit it into one of the provided categories and then provide the exact test name, characteristic, etc. in the short description. Do not add your own external assessment ("other") to the list unless absolutely necessary. Click "Ok" when complete with the subjects panel to save your information.

VBM Analysis



VBM Software
Click on the drop-down menu provided and choose the software used to analyze VBM data.

Brain Template
Click on the drop-down menu provided and choose the brain template used to report the stereotactic coordinates.

MRI Field Strength
Click on the drop-down menu provided and choose the strength of the MRI magnet used to acquire data (in Tesla).

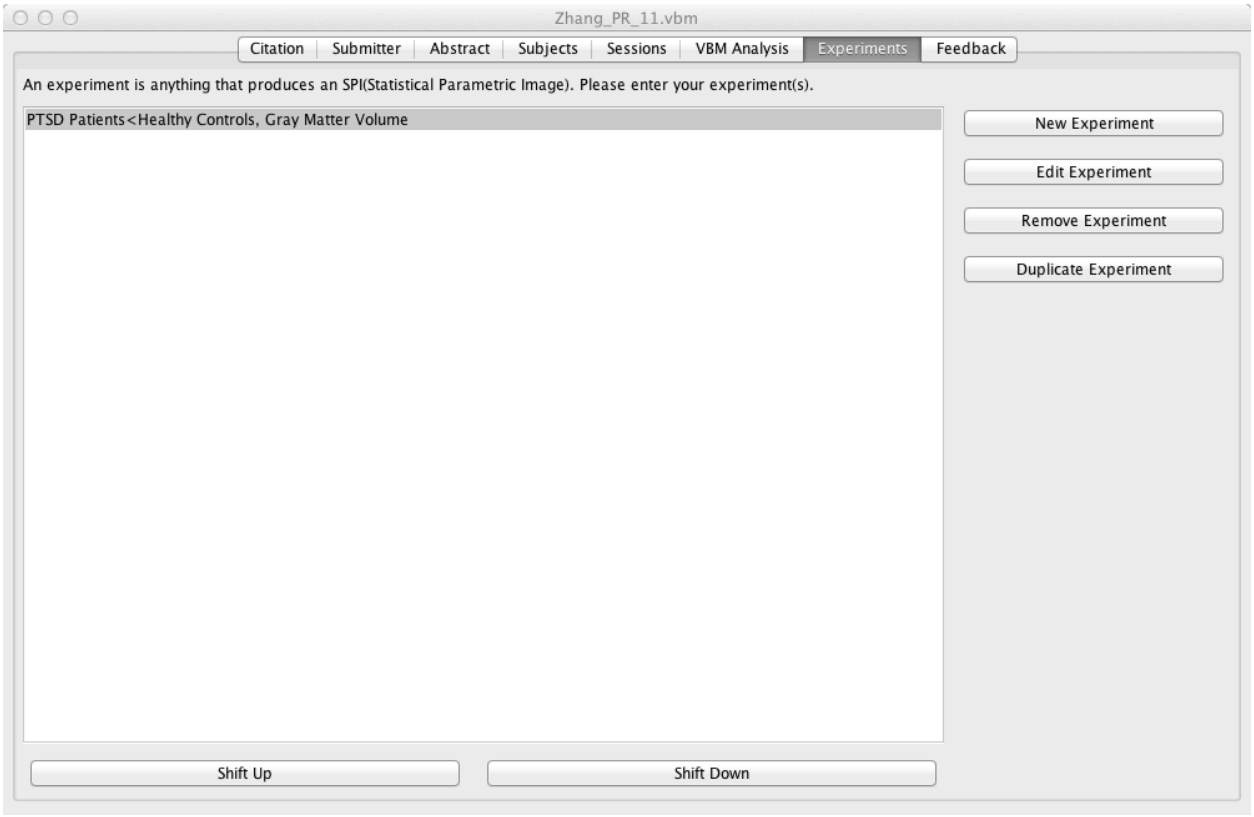
Resolution (mm)
Provide the final voxel size/resolution in mm (e.g., 1x1x1). If this parameter is not provided in the paper, provide the Field of View (FOV) and the slice thickness in mm.

Smoothing Kernel (mm)
Provide the Gaussian smoothing kernel used in mm.

Optimized?
State whether the authors used an "optimized" VBM protocol. If the paper states they used the protocol described in Good et al., 2001 or Asburner and Friston, 2000, then this is "optimized". Also, if images were modulated by the Jacobian determinant, then this is also considered "optimized".

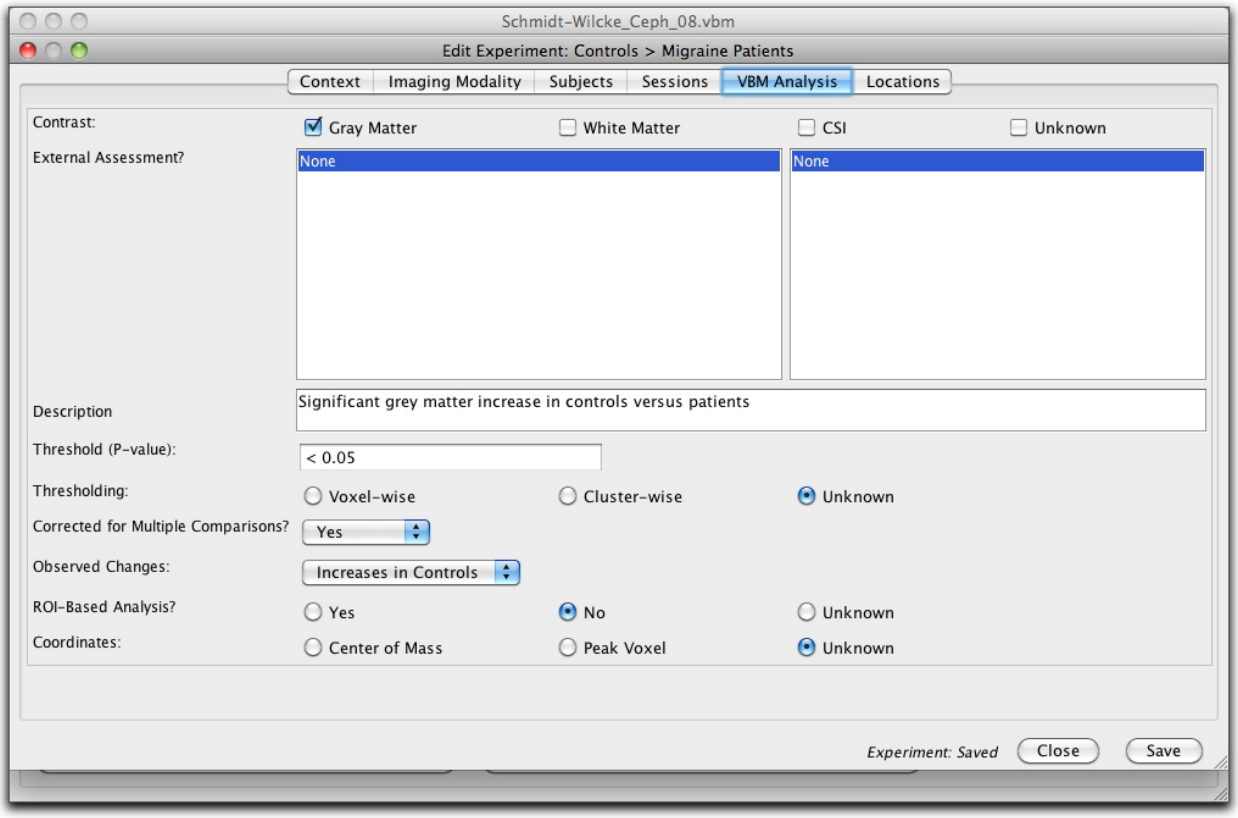
Short Description
Enter the software used for spatial normalization.

Experiments



In the Experiments panel, the options for Context, Imaging Modality, Subjects, Sessions, and Locations are the same as for functional submissions. A new panel for VBM Analysis has been added. Due to the simplicity of VBM protocols, there is no panel for Conditions, Paradigm Class, or Behavioral Domain.
When naming experiments, please specify if the locations are Grey Matter or White Matter, increases or decreases.

Experiments: VBM Analysis



Contrast
Select the tissue contrast for the given experiment.

External Assessment?
This panel contains the names of the external assessments previously provided on the Subjects panel. If the paper included more than one external assessment, choose the one correlated in the given experiment. If no external assessment was correlated then you should select "None".

Description
If relevant, specify the external assessment as you did in the "Subjects" panel. If corrected for multiple comparisons, include the method of correction (e.g., Family-wise Error Correction, etc.") here.

Threshold (P-value)
Provide the p-value used for this experiment. (e.g., <0.01, <0.001, <0.05, etc.)

Thresholding
Select the method of thresholding. If information not provided, select "Unknown".

Corrected for Multiple Comparisons?
Select the answer from the pull-down menu.

Observed Changes

If there is greater brain matter volume in controls (Healthy Controls > Patients), then this would be "Increases in Controls", if great brain matter volume in patients (Patients > Healthy Controls), then you would select "Increases in Patients". If the experiment contrasts two patient groups or two healthy control groups, choose "Neither".

ROI-Based Analysis?
Select "Yes" for ROI-based analyses that analyzed a small, fixed number of *a priori* brain regions. Select "No" for whole brain analyses.

Coordinates
State whether the published x, y, z coordinates were extracted from the "Center of Mass" or "Peak Voxel" of the observed cluster.

Save VBM BrainMap Database Submission

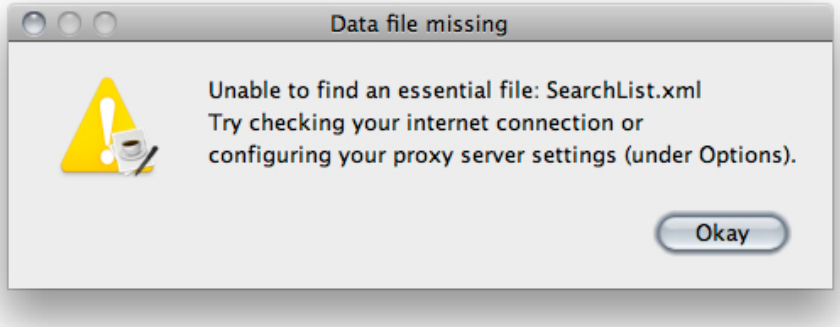
After all information has been entered, save the BrainMap database submission by clicking on the top left program menu: 'File' → 'Save As'. This saves the information in a .vbm file.

Enter the file name in the following format: "Author_Journal_Year". Journal names should be abbreviated and years listed as the last two digits of the published year, for example, "Lee_HBM_02.vbm".

When you are finished, email your .vbm file and a .pdf of the original article to the BrainMap Research Assistant http://brainmap.org/contact.html for review and insertion into the database.

Troubleshooting

“Scribe says that I’m missing an essential file.”


Data file missing
Unable to find an essential file: SearchList.xml
Try checking your internet connection or
configuring your proxy server settings (under Options).
Okay

This can indicate one of two things. First, the BrainMap web server may be down for maintenance. In this case, try restarting Scribe in an hour or so. Alternatively, there may be a firewall blocking communication to the BrainMap web server. If a successful connection to BrainMap has been made previously, then please contact BrainMap technical support to check the web server.

If you are behind a restrictive firewall and have a known proxy server, Scribe can use it to access our BrainMap web server. Under File:Options, there is a menu item called “Proxy Settings”. You will need to know the IP and valid port of the proxy server.